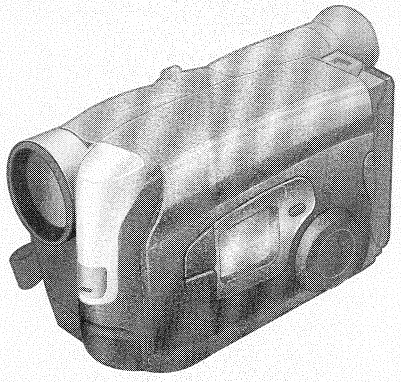
JVC

SERVICE MANUAL

COMPACT VHS CAMCORDER

GR-AX270EG/AX275EG /AX370EG/AX470EG



The Logical Choice
Compact VHS
VHS C
The only compact video cassettes that can be used with your VHS VCR*
*with Cassette Adapter

Compact VHS
VHS C
PAL

SPECIFICATIONS *(The specification shown pertain specifically to the model GR-AX270EG/AX370EG/AX470EG)*

GENERAL

Format : VHS PAL standard
Power source : DC 6 V ⎓
Power consumption
    GR-AX470 light on : 8.3 W
    GR-AX470 light off/
    GR-AX270 : 5.3 W
    GR-AX370 : 5.5 W
Signal system : PAL-type
Video recording system
    Luminance : FM recording
    Colour : Converted sub-carrier direct recording Conforms to VHS standard
Cassette : VHS C cassette
Tape speed : 23.39 mm/sec
Recording time
    Max. : 60 minutes (with EC-60 cassette)
Operating temperature : 0°C to +40°C
Operating humidity : 35% to 80%
Storage temperature : –20°C to +50°C
Weight
    GR-AX470 : Approx. 825 g
    GR-AX370 : Approx. 805 g
    GR-AX270 : Approx. 820 g
Dimensions
    GR-AX470/AX270 : 112 (W) x 112 (H) x 229 (D) mm
    GR-AX370 : 112 (W) x 112 (H) x 208 (D) mm

CAMERA

Pick up : 1/4″ format CCD
Lens : F1.6, f = 3.8 to 68.4 mm, 18:1 power zoom lens with auto iris and macro control, filter diameter 46 mm
Viewfinder : Electronic viewfinder with
    •0.5″ B/W CRT (GR-AX470/AX270)
    •0.55″ colour LCD (GR-AX370)
White balance adjustment : Auto/Manual adjustment

VIDEO

Output : 1 Vp-p, 75 ohms, unbalanced (via VIDEO out connector)

AUDIO

Output : –8 dBs, 1 k-ohm (via AUDIO out connector)

AC POWER ADAPTER/BATTERY CHARGER (AA-V11EG)

Power requirement : AC 110 to 240 V∿, 50/60 Hz
Power consumption : 23 W
Output : DC 8.5 V ⎓, 1.3 A (CHARGE), DC 6.3 V ⎓, 1.8 A (VTR)
Charging system : Constant current, peak detection, timer controlled
Dimensions : 150 (W) x 42 (H) x 68 (D) mm
Weight : Approx. 350 g

CASSETTE ADAPTER (C-P7U)

Dimensions : 188 (W) x 25 (H) x 104 (D) mm
Weight : Approx. 240 g
Accessory : "R6 (AA)"-size battery x 1

Provided Accessories ....☞ pg. 3

Optional Accessories

- **Battery Packs BN-V12U, BN-V22U, BN-V25U**
- **Car Battery Charger BH-V3E**
- **RF Unit RF-V5E**
- **Compact VHS-C Cassettes EC-60/45/30**
- **Active Carrying Bag CB-V7U**
- **Wireless Remote Control Unit RM-V704U or RM-V700U**
  The RM-V704U/V700U cannot be used to operate the GR-AX370/AX270.
  The GR-AX370/AX270 can use the RM-V704U/V700U only for R.A. Edit with a non-JVC VCR.

* Some acccessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

E.&O.E.Design and specifications subject to change without notice.

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No. 86321
February 1997

TABLE OF CONTENTS

Section Title Page

Important Safety Precautions
INSTRUCTIONS

1. DISASSEMBLY

- 1.1 SERVICE CAUTIONS 1-1
  - 1.1.1 Precautions 1-1
  - 1.1.2 How to read the disassembly and assembly 1-1
  - 1.1.3 Connection of the wires 1-1
  - 1.1.4 Main screws to deal with disassembly/assembly 1-1
- 1.2 DISASSEMBLY/ASSEMBLY OF CABINET PARTS 1-2
  - 1.2.1 Disassembly flow chart 1-2
  - 1.2.2 Disassembly method 1-2
- 1.3 DISASSEMBLY/ASSEMBLY OF CAMERA PARTS 1-4
  - 1.3.1 Disassembly flow chart 1-4
  - 1.3.2 Disassembly method 1-4
- 1.4 DISASSEMBLY/ASSEMBLY OF DECK PARTS 1-5
  - 1.4.1 Disassembly flow chart 1-5
  - 1.4.2 Disassembly method 1-5
- 1.5 TO TAKE OUT CASSETTE TAPE 1-6
- 1.6 REPLACEMENT OF CCD IMAGE SENSOR 1-7
  - 1.6.1 Removal of CCD image sensor 1-7
  - 1.6.2 Installation of new CCD image sensor 1-7
- 1.7 EXTENSION CABLE CONNECTION 1-8

2. MECHANISM ADJUSTMENT

- 2.1 SERVICE CAUTIONS 2-1
  - 2.1.1 Precautions 2-1
  - 2.1.2 How to read the disassembly and assembly (For Mechanism Parts) 2-1
  - 2.1.3 Main screws and washers to deal with disassembly/assembly 2-1
- 2.2 DISASSEMBLY/ASSEMBLY OF MECHANISM PARTS 2-2
- 2.3 REPLACEMENT OF UPPER DRUM 2-6
  - 2.3.1 Removal of upper drum 2-6
  - 2.3.2 Installation of new upper drum 2-6
- 2.4 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE 2-7
- 2.5 TAPE TRANSPORT ADJUSTMENT 2-8
  - 2.5.1 Required adjustment tools 2-8
  - 2.5.2 Back tension 2-8
  - 2.5.3 Tape pattern 2-8
  - 2.5.4 A/CTL head height & azimuth 2-9
  - 2.5.5 Phase of control head (X value) 2-10
- 2.6 REMARKS 2-10
  - 2.6.1 Cleaning 2-10
  - 2.6.2 Applying oil and grease 2-10
  - 2.6.3 Checkup 2-10
- 2.7 PATCH CORD (YTU93082A) CONNECTION 2-11

3. ELECTRICAL ADJUSTMENT

- 3.1 ELECTRICAL ADJUSTMENT 3-1
  - 3.1.1 PREPARATION 3-1
- 3.2 ELECTRONIC VIEWFINDER (E. VF) ADJUSTMENT <TYPE M> 3-3
  - 3.2.1 Horizontal sync. 3-4
  - 3.2.2 PLL adjustment 3-4
  - 3.2.3 Centering 3-4
  - 3.2.4 Focus 3-4
  - 3.2.5 Brightness 3-4
- 3.3 ELECTRONIC VIEWFINDER (E. VF) ADJUSTMENT <TYPE T> 3-5
  - 3.3.1 Tilt 3-5
  - 3.3.2 Centering 3-5
  - 3.3.3 Vertical scanning 3-5
  - 3.3.4 Brightness 3-5
  - 3.3.5 Focus 3-5
- 3.4 COLOR VIEWFINDER SECTION ADJUSTMENT (FOR AX370EG) 3-6
  - 3.4.1 PLL 3-7
  - 3.4.2 White level 3-7
  - 3.4.3 Black level 3-7
  - 3.4.4 Middle gray level 3-7
  - 3.4.5 R bright (White bal. R) 3-8
  - 3.4.6 B bright (white bal. B) 3-8
  - 3.4.7 White balance 3-8

4. CHARTS AND DIAGRAMS

- NOTES OF SCHEMATIC DIAGRAM 4-1
- CIRCUIT BOARD NOTES 4-2
- 4.1 BOARD INTERCONNECTIONS 4-3
- 4.2 POWER SYSTEM BLOCK DIAGRAM 4-5
- 4.3 Y/C AND PROCESS BLOCK DIAGRAM 4-7
- 4.4 SYSCON/MDA BLOCK DIAGRAM 4-11
- 4.5 SYSCON SCHEMATIC DIAGRAM 4-13
- 4.6 AUDIO SCHEMATIC DIAGRAM 4-15
- 4.7 REGULATOR SCHEMATIC DIAGRAM 4-17
- 4.8 MAIN 1 CIRCUIT BOARD 4-19
- 4.9 JACK SCHEMATIC DIAGRAM 4-25
- 4.10 PROCESS AND Y/C SCHEMATIC DIAGRAM 4-27
- 4.11 AF/CPU SCHEMATIC DIAGRAM 4-30
- 4.12 OPERATION (CAMERA) AND OPERATION UNIT SCHEMATIC DIAGRAM 4-33
- 4.13 MAIN 2 CIRCUIT BOARD 4-35
- 4.14 CCD SCHEMATIC DIAGRAM 4-41
- 4.15 CCD AND UPPER DRUM CIRCUIT BOARDS 4-43
- 4.16 MDA SCHEMATIC DIAGRAM 4-45
- 4.17 PRE/REC SCHEMATIC DIAGRAM 4-47
- 4.18 SENSOR CIRCUIT BOARD 4-49
- 4.19 WAVEFORMS 4-52
- 4.20 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM for AX270/275/470EG (TYPE T) 4-53
- 4.21 ELECTRONIC VIEWFINDER CIRCUIT BOARD for AX270/275/470EG (TYPE T) 4-55
- 4.22 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM for AX270/275/470EG (TYPE M) 4-57
- 4.23 ELECTRONIC VIEWFINDER CIRCUIT BOARD for AX270/275/470EG (TYPE M) 4-59
- 4.24 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM for AX370EG 4-61
- 4.25 ELECTRONIC VIEWFINDER CIRCUIT BOARD for AX370EG 4-63
- 4.26 VOLTAGE CHARTS 4-65

5. PARTS LIST

- 5.1 PACKING ASSEMBLY <M1> 5-1
- 5.2 FINAL ASSEMBLY <M2> 5-3
- 5.3 MECHANISM ASSEMBLY <M3> 5-6
- 5.4 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX270EG/275EG/470EG] 5-8
- 5.5 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX270EG/275EG/470EG] 5-9
- 5.6 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX370EG] 5-10
- 5.7 ELECTRICAL PARTS LIST 5-11
  - MAIN1 BOARD ASSEMBLY <01> 5-11
  - MAIN2 BOARD ASSEMBLY <02> 5-13
  - CCD BOARD ASSEMBLY <03> 5-17
  - SENSOR BOARD ASSEMBLY <05> 5-18
  - E. VF BOARD ASSEMBLY (GR-AX270EG/AX275EG/AX470EG TYPE T) <10> 5-19
  - OPERATION (DECK) BOARD ASSEMBLY<20> 5-20
  - OPERATION (CAMERA) BOARD ASSEMBLY <21> 5-20
  - UPPER DRUM BOARD <40> 5-20
  - E. VF BOARD ASSEMBLY (GR-AX270EG/AX275EG/AX470EG TYPE M) <50> 5-20
  - VF BOARD ASSEMBLY (GR-AX370EG) <51> 5-21
  - BL BOARD ASSEMBLY (GR-AX370EG) <52> 5-22

6. TECHNICAL INFORMATION

- 6.1 EMERGENCY DISPLAY 6-1
- 6.2 DEMONSTRATION MODE 6-2

The following table lists the differing points between Models (GR-AX270EG, GR-AX275EG, GR-AX370EG and GR-AX470EG) in this series.

	GR-AX270EG	GR-AX275EG	GR-AX370EG	GR-AX470EG
LCD WINDOW	×	←	←	○
VIEWFINDER	BLACK/WHITE	←	COLOR	BLACK/WHITE
DC LIGHT	×	←	←	○
IR SENSOR	×	○	×	○
REMOCON	×	RM-V705U	×	RM-V700U

NOTE: × NOT USED ○ USED

Mark ← is same as at left

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

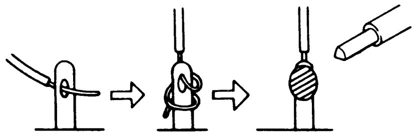


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

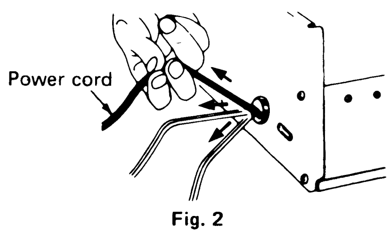


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

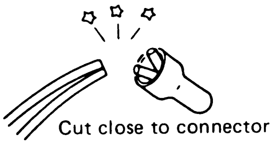


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

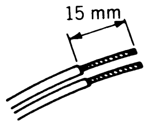


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

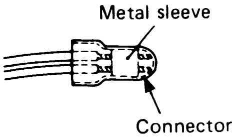


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

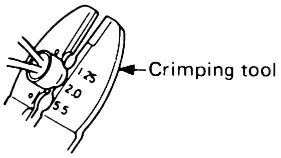


Fig. 6

(5) Check the four points noted in Fig. 7.

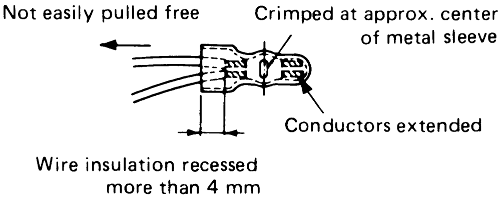

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

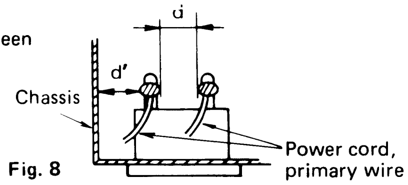


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

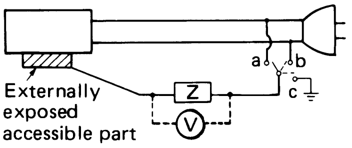


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

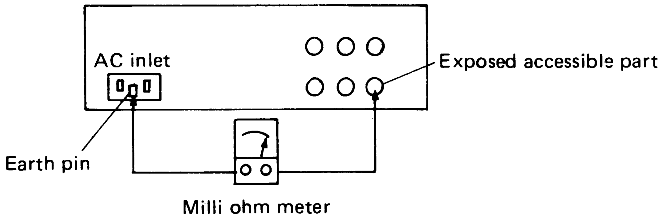


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Dear Customer,
Thank you for purchasing the JVC Compact VHS camcorder. Before use, please read the safety information and precautions contained in the following pages to ensure safe use of your new camcorder.

Using This Instruction Manual

- All major sections and subsections are listed in the Table Of Contents (☞ pg. 3).
- Notes appear after most subsections. Be sure to read these as well.
- Basic and advanced features/operation are separated for easier reference.

It is recommended that you . . .

..... refer to the Index (☞ pgs. 40 – 42) and familiarize yourself with button locations, etc. before use.

..... read thoroughly the Safety Precautions that follow and cautions (☞ pgs. 43, 44). They contain extremely important information regarding the safe use of your new camcorder.

SAFETY PRECAUTIONS

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTIONS:

- ■ To prevent shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified personnel.
- ■ When you are not using the AC Power Adapter/Battery charger for a long period of time, it is recommended that you disconnect the power cord from AC outlet.

VHS C PAL HQ

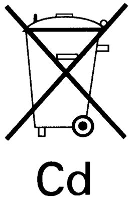
- ■ Camcorder is designed exclusively for the VHS-C video cassette. Only cassettes marked VHS-C can be used with this unit.
- ■ HQ VHS is compatible with existing VHS equipment.

Warning on lithium battery

The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate.
Replace battery with Panasonic (Matsushita Electric), Sanyo or Maxell CR2025; use of another battery may present a risk of fire or explosion.

- ■ Dispose of used battery promptly.
- ■ Keep away from children.
- ■ Do not disassemble and do not dispose of in fire.

Crossed Out Dust Bin Mark



- ■ The Crossed Out Dust Bin Mark on the battery pack indicates that the product complies with Directives 91/157/EEC and 93/86/EEC.
- ■ Nickel-Cadmium (Ni-Cd) battery pack must be recycled or disposed of properly.

This camcorder is designed to be used with PAL-type colour television signals. It cannot be used for playback with a television of a different standard. However, live recording is possible anywhere. Use the BN-V12U/V22U/V25U battery packs and, to recharge them, the provided multi-voltage AC Power Adapter/Charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)

NOTES:

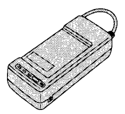
- *The rating plate (serial number plate) and safety caution are on the bottom and/or the back of the main unit.*
- *The rating plate (serial number plate) of the AC Power Adapter/Charger is on its bottom.*

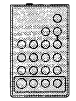
This unit is produced to comply with Standard IEC Publ. 65.

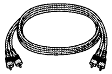
MAJOR FEATURES

- ■ **Program Manager (☞ pg. 14 – 23)**
- ■ **Programme AE with Special Effects (☞ pgs. 14, 15)**
  - • Auto Mode Lock
  - • Auto Mode Release
  - • Electronic Fog Filter • ND Effect
  - • Sepia • Twilight • Sports
  - • 1/1000 sec. High Speed Shutter
  - • 1/2000 sec. High Speed Shutter
- ■ **Integrated Auto Light (GR-AX470 only) (☞ pg. 13)**
- ■ **Variable-Speed Hyper Zoom (☞ pg. 11)**
- ■ **EasyEdit with Random Assemble Editing (☞ pg. 31 – 33)**

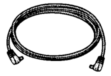
PROVIDED ACCESSORIES

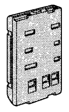

• AC Power Adapter/ Charger AA-V11EG

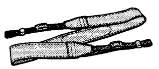

• Remote Control Unit RM-V704U or RM-V700U (GR-AX470 only)

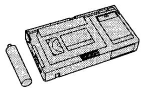

• AUDIO/VIDEO (A/V) cable

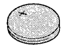
• Editing cable (GR-AX470 only)

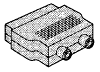

• DC cord


• Battery Pack BN-V12U


• Shoulder Strap

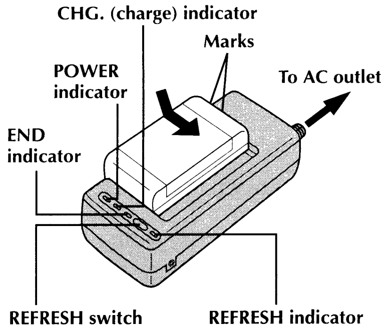

• Cassette Adapter C-P7U

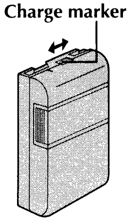

• Lithium Battery CR2025 (two for GR-AX470, one for GR-AX370/AX270)


• Cable Adapter

CONTENTS

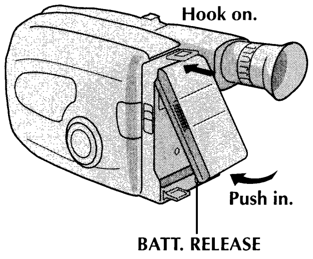
GETTING STARTED 4
Power 4
Clock (Lithium) Battery Insertion/Removal ... 6
Viewfinder Adjustment 6
Date/Time Setting 7
Tape Length Setting 8
Loading/Unloading A Cassette 8
Grip Adjustment 9
Shoulder Strap Attachment 9
Tripod Mounting 9
RECORDING 10
Basic Recording 10
Basic Features 11
Advanced Features 14
PLAYBACK 26
Using The Cassette Adapter 26
Basic Connections 27
Basic Playback 28
Features 29
EDITING 30
Tape Dubbing 30
Random Assemble Editing [R.A.Edit] 31
USING REMOTE CONTROL UNIT (GR-AX470 only) 34
Insert Editing 36
Audio Dubbing 37
TROUBLESHOOTING 38
INDEX 40
Controls 40
Connectors 41
Indicators 41
Other Parts 41
Viewfinder 42
CAUTIONS 43
SPECIFICATIONS 45





****CHARGE MARKER**

A charge marker is provided on the battery pack to help you remember whether it has been charged or not. Two colors are provided (red and black)—you choose which one means charged and which means discharged.



ATTENTION:

Before detaching the power source, make sure that the camcorder's power is turned off. Failure to do so can result in a camcorder malfunction.

Power

This camcorder's 3-way power supply system lets you choose the most appropriate source of power.

NOTES:

- *No function is available without power supply.*
- *Use only specified power supply.*
- *Do not use provided power supply units with other equipment.*

CHARGING THE BATTERY PACK

1 **SUPPLY POWER**

Connect the charger's AC power cord to a wall outlet. The power indicator lights.

2 **ATTACH BATTERY PACK**

Align the marks and slide the battery pack in the direction of the arrow until it locks in place.
The CHG. indicator lights.

3 **DETACH BATTERY PACK**

When charging is completed, the END indicator lights. Slide the battery pack opposite the direction of the arrow.

BATT. PACK	CHARGE	DISCHARGE
BN-V12U	approx. 1 hr. 10 min.	approx. 3 hrs. 30 min.
BN-V22U	approx. 2 hrs. 10 min.	approx. 7 hrs.
BN-V25U	approx. 2 hrs. 40 min.	approx. 10 hrs.

USING THE BATTERY PACK

1 **ATTACH BATTERY PACK**

Hook its top end to the camcorder and push the battery pack in until it locks in place.

2 **DETACH BATTERY PACK**

Slide BATT. RELEASE and pull out the battery pack.

APPROXIMATE RECORDING TIME

BATT. PACK	GR-AX470/AX270	GR-AX370
BN-V12U	1 hr. 10 min. (40 min.)	1 hr. 10 min.
BN-V22U	2 hrs. 25 min. (1hr. 30 min.)	2 hrs. 20 min.
BN-V25U	3 hrs. 10 min. (1hr. 55 min.)	3 hrs. 5 min.

( ): when the video light is on (GR-AX470 only).

****REFRESH**

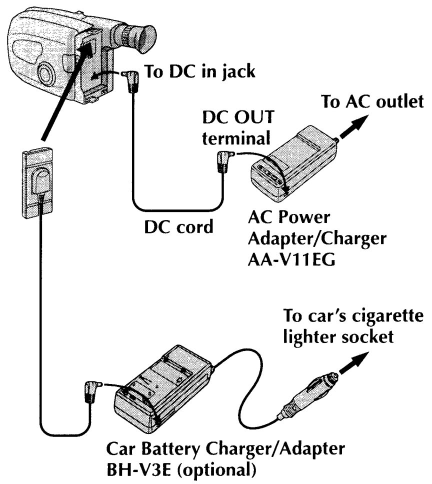
The AC power adapter features a REFRESH function that allows you to fully discharge the battery pack before recharging.

To discharge the battery . . .

..... attach the battery pack to the adapter as shown in the illustration to the left. Then push REFRESH. The REFRESH indicator lights when discharging starts, and goes out when discharging is complete.

NOTES:

- *The recording time per charge is affected by such factors as the time spent in Record/Standby mode and the frequency of zooming. It is safer to have spare battery packs.*
- *Charging times noted on page 4 are for fully discharged battey pack, and discharging times are for fully charged battery pack.*
- *Charging and discharging times vary according to the ambient temperature and the status of the battery pack.*
- *Remember to set the charge marker after charging a battery pack or after detaching a discharged one from your camcorder.*
- *Perform the REFRESH function after no less than 5 chargings.*
- *High temperatures can damage the battery pack, so use only where good ventilation is available. Don't allow it to discharge in container, such as a bag.*
- *If you stop recharging or discharging part way through, make sure to remove the battery pack before unplugging the adapter's AC cord.*
- *Remove the battery pack from the adapter immediately after discharging.*
- *To avoid interference with reception, do not use the AC Power Adapter/Charger near a radio.*
- *Make sure you unplug the DC cord before charging or discharging the battery pack.*
- *A blinking CHG. indicator means that the battery pack has become hot. Wait until it cools down to continue.*
- *The CHG. indicator may not light properly with a brand new battery pack, or with one that's been stored for an extended period. In this case, remove and reattach the battery pack and recharge it. The CHG. indicator should light during recharging. If not, contact your nearest JVC dealer.*


To DC in jack
To AC outlet
DC OUT terminal
DC cord
AC Power Adapter/Charger AA-V11EG
To car's cigarette lighter socket
Car Battery Charger/Adapter BH-V3E (optional)

USING A CAR BATTERY

Use the Car Battery Charger/Adapter (connect as shown in the illustration to the left).

NOTES:

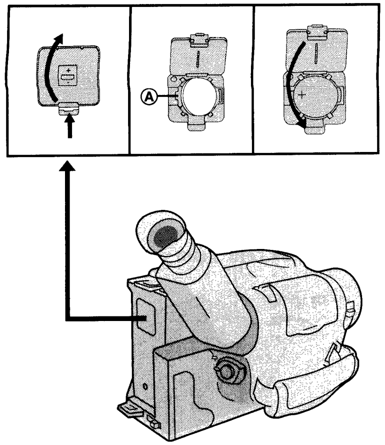
- *When using the car battery, leave the engine idling.*
- *The optional Car Battery Charger (BH-V3E) can also be used to charge the battery pack.*
- *When using the optional Car Battery Charger, refer to the respective instruction booklet.*

USING AC POWER

Use the AC Power Adapter (connect as shown in the illustration to the left).

NOTE:

The supplied AC Power Adapter/Charger features automatic voltage selection in the AC range from 110 V to 240 V.



Clock (Lithium) Battery Insertion/Removal

This battery is necessary for clock operation and to perform date/time settings.

1 SWITCH OFF POWER

Switch off the unit's power and remove the power supply unit.

2 OPEN COVER

Open the clock battery compartment cover while pressing the release tab.

3 REMOVE BATTERY (when replacing)

Insert a pointed, non-metallic object between the battery and the compartment (Ⓐ) and pull the battery out.

4 INSERT BATTERY

Ensuring the plus (+) side is up, insert a CR2025 lithium battery and push it in.

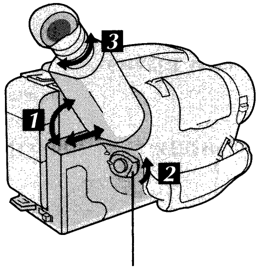
5 CLOSE COVER

Close the compartment cover until it clicks in place.

NOTE:

See "SAFETY PRECAUTIONS" (☞ pg. 2) for information on safe handling of lithium batteries.

Viewfinder Adjustment



Set POWER to "CAMERA".

1 POSITION VIEWFINDER

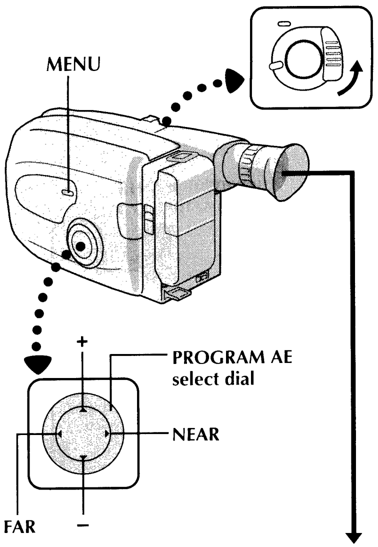
Adjust the viewfinder manually for best viewability (see illustration at left).

2 SELECT MODE

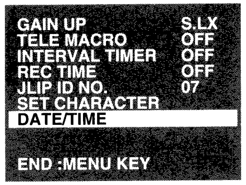
Set the power switch to CAMERA.

3 ADJUST DIOPTER

Turn the diopter adjustment control until the indications in the viewfinder are clearly focused.



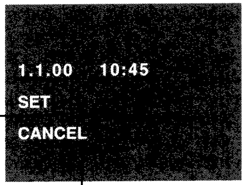
Menu Screen



GAIN UP S.LX
TELE MACRO OFF
INTERVAL TIMER OFF
REC TIME OFF
JLIP ID NO. 07
SET CHARACTER
DATE/TIME

END :MENU KEY

Set Time and Date Screen



1.1.00 10:45
SET
CANCEL

Date
Day/Month/Year

Time
24-hour indication

Date/Time Setting

1 SELECT MODE

First set the power switch to "CAMERA". Turn th PROGRAM AE select dial to any position excep AUTO LOCK.

2 ACCESS MENU SCREEN

Press **MENU**.

3 SELECT FUNCTION

Press – to move the highlight bar down to "DAT TIME", then press **NEAR**. The Set Date And Tim screen appears.

4 SET DATE/TIME

Press **FAR** or **NEAR** until the item you want to se begins blinking, then press + or – to until the co setting appears.

- If you decide you want to return the date and t to the previous settings, press **FAR** or **NEAR** to move the highlight bar to "CANCEL", then pre **MENU**.
- If you're satisfied with the settings, go on to ste

5 START CLOCK OPERATION

Once you've set the day, month, year and time, press **FAR** or **NEAR** until "SET" begins to blink, t press **MENU**. The Menu screen reappears.

6 CLOSE MENU

Press **MENU**.

NOTES:

- *To display the date and time in the viewfinder and on a connected TV, see "Date/Time Insert" (☞ pg. 20).*
- *If, in step **4**, you input an invalid date (30. 2, 31. 1, etc.) and perform step **5**, "INPUT ERROR" appears blinking at the bottom of the screen. Press **+**, **–**, **FAR** or **NEAR** to input the correct number.*

Tape Length Setting

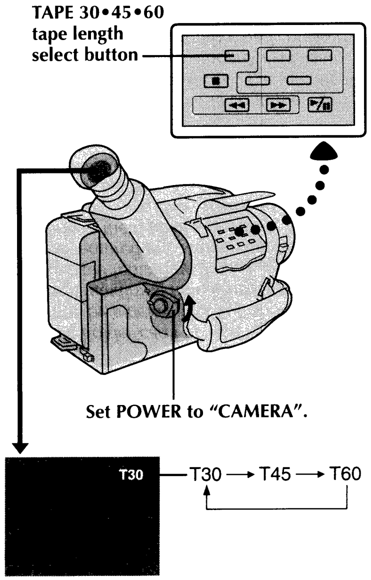
Set the tape length according to the length of the tape used.

1 SET TAPE LENGTH

Press TAPE 30•45•60 until the required indication appears in the veiwfinder. T30 = 30 minutes of recording time, T45 = 45 minutes, and T60 = 60 minutes.

NOTE:

The tape remaining time (☞ pg. 10) displayed in the viewfinder is correct only if the correct tape length has been selected.



Tape length indicator

Loading/Unloading A Cassette

1 OPEN CASSETTE HOLDER

Slide EJECT until the holder opens. Do not use force to open.

2 INSERT/REMOVE CASSETTE

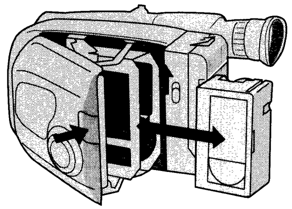
Make sure the label is facing outward.

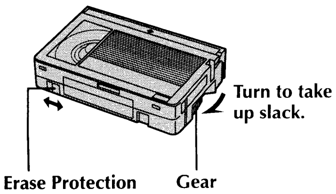
3 CLOSE CASSETTE HOLDER

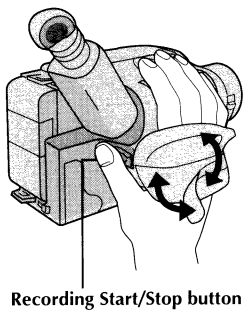
Press PUSH and make sure the holder is closed and locked.

NOTES:

- *A cassette holder can't be opened unless a power supply is attached.*
- *Make sure that the tape is not slack when loading the cassette. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up the slack.*
- *Make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.*
- *The cassette holder can't be opened while the camcorder is in the record mode.*







Grip Adjustment

1 EXPAND LOOP

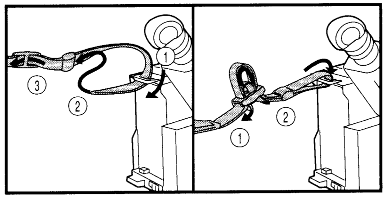
Separate the Velcro strip.

2 INSERT HAND

Pass your right hand through the loop and grasp the grip.

3 ADJUST STRAP LENGTH

Adjust so your thumb and fingers can easily operate the Recording Start/Stop button and Power Zoom lever. Refasten the Velcro strip.



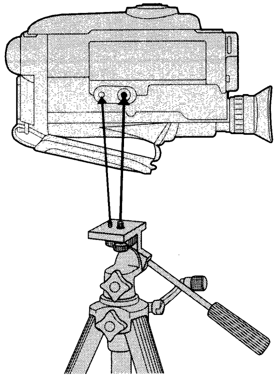
Shoulder Strap Attachment

1 ATTACH STRAP

Following the illustration at left, thread the strap through the top of the eyelet ①, then fold it back and thread it through the keeper ②, and then through the buckle ③. Repeat the procedure to attach the other end of the strap to the other eyelet, making sure the strap isn't twisted.

2 ADJUST LENGTH

Adjust as shown in the illustration at left ①, then slide both keepers snug against the eyelets to prevent slipping ②.

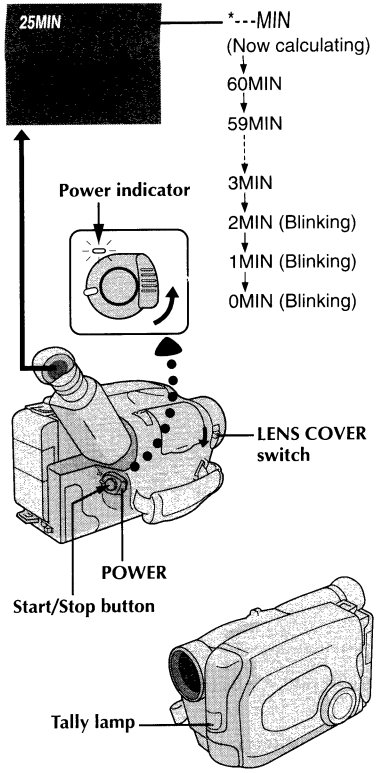


Tripod Mounting

1 ALIGN AND TIGHTEN

Align the screw and camera direction stud on the tripod with the camera's mounting socket and stud hole. Then tighten the screw.

Tape remaining time indicator



NOTE:

You should already have performed the procedures listed below. If not, do so before continuing.

- *Power (☞ pg. 4)*
- *Tape Length setting (☞ pg. 8)*
- *Grip Adjustment (☞ pg. 9)*

1 LOAD A CASSETTE

Slide EJECT to open the cassette holder, then insert the cassette with the label facing out. Press PUSH to ensure the holder is closed and locked.

2 ENTER RECORD–STANDBY MODE

Slide the LENS COVER open/close switch to open the lens cover, then set the power switch to "CAMERA".

- The power indicator lights and the camcorder enters the Record–Standby Mode.
- The scene you're aimed at appears on the viewfinder screen, with the word "PAUSE" superimposed upon it.

3 START SHOOTING

Press the **RECORDING START/STOP** button.

- The tally lamp lights while recording is in progress, and "REC ▶▶▶" appears in the viewfinder.

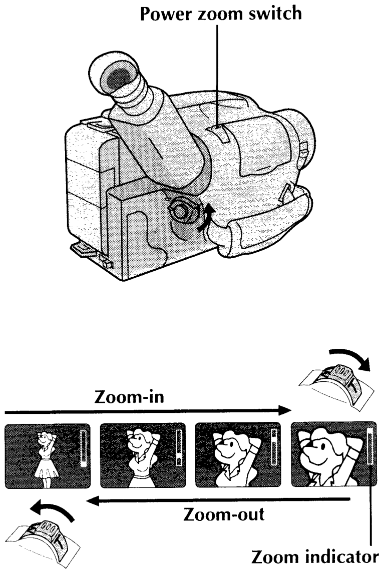
4 STOP RECORDING

Press the **RECORDING START/STOP** button again to stop recording.

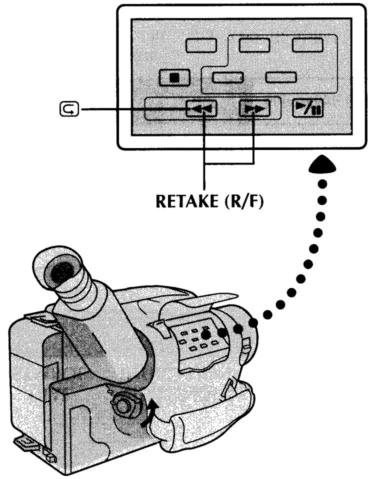
- The camcorder re-enters the Record-Standby mode.

NOTES:

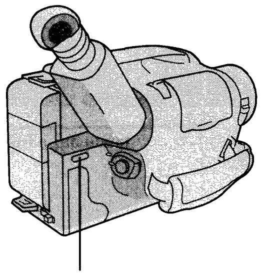
- *A cassette holder can't be opened unless a power supply is attached.*
- *There may be a delay after you slide EJECT until the holder opens. Do not use force.*
- *The tape's remaining time is displayed in the viewfinder as shown.*
- *The indicated remaining time is approximate.*
- *The time required to calculate the remaining tape length, and the accuracy of the calculation, may vary according to the type of tape used.*
- *The tape remaining time displayed in the viewfinder is correct only if the correct tape length has been selected (☞ pg. 8).*
- *"TAPE END" appears when the tape reaches its end, and the power goes off automatically if left in this condition for 5 minutes. "TAPE END" also appears when a cassette whose tape is already at its end is loaded.*
- *If the Record–Standby mode continues for 5 minutes without performing Zoom or any other operations, the camcorder's power shuts off automatically. Set the Power switch to "POWER OFF", and then back to "CAMERA" to turn the camcorder on again.*
- *If the Recording Start/Stop button is pressed after the Record-Standby mode has continued for over 5 minutes, recording may not start immediately.*
- *If you're recording on a cassette from the middle, use the RETAKE function (☞ pg. 12) to find the end of the last recording so you don't erase any of it.*
- *The LENS COVER warning blinks for about 10 seconds when the camcorder is turned on, when the cover is closed.*



FEATURE:	**Zooming**
PURPOSE:	Varies the focal length of the lens and produces the zoom in/out effect.
OPERATION:	***Zoom In*** **1)** Pull the power zoom switch down toward "T". ***Zoom Out*** **1)** Push the switch up toward "W".
NOTES:	• *The further the power zoom switch is pushed, the faster the zoom speed becomes.* • *Focusing may become unstable during zooming. In this case, set the zoom while in Record–Standby, set manual focus or Focus Lock (☞ pgs. 16, 17), then zoom in or out in Record mode.*



FEATURE:	**Quick Review**
PURPOSE:	To check the end of the last recording.
OPERATION:	**1)** Press "Ⓖ" and release quickly during the Record–Standby mode. • Tape is rewound for about 2 seconds and played back automatically, then pauses in Record–Standby mode for the next shot.
NOTE:	*Distortion may occur at start of playback. This is normal.*
FEATURE:	**Retake**
PURPOSE:	To re-record certain segments.
OPERATION:	**1)** Make sure the camcorder is in the Record–Standby mode. **2)** Press either **RETAKE** button to reach the start point for new recording. Pressing "F" fast-forwards the tape and pressing "R" reverses it. **3)** Press Recording Start/Stop to start recording.
NOTE:	*Noise may appear during Retake. This is normal.*



LIGHT ON/AUTO/OFF

Video Light (GR-AX470 only)

When natural lighting is too dim, you can brighten the scene by using the built-in video light.

1 SET VIDEO LIGHT

Set the **LIGHT ON/AUTO/OFF** as required.

ON : Always keeps the light on as long as the camcorder is turned on.
AUTO : Automatically turns on the light when the camcorder senses insufficient lighting on the subject.
OFF : Turns off the light.

- The video light can be used with the camcorder's power on.
- It is recommended to set the white balance (☞ pg. 21) to indoor mode (☼) when you use the video light.
- When not using the video light, turn it off to save battery power.

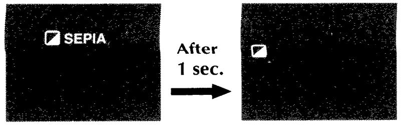
NOTES:

- *Even if the battery indicator (▭) does not blink in the viewfinder, if the battery pack's charge is low, the camcorder may turn off automatically when you turn on the video light, or when you start recording with the video light turned on.*
- *When the* ***LIGHT ON/AUTO/OFF*** *switch is set to "AUTO":*
  - *Depending on the lighting conditions, the video light may keep turning on and off. In this case, manually switch the light on or off using the* ***LIGHT ON/AUTO/OFF*** *switch.*
  - *While the Sports or High-Speed Shutter mode (☞ pg. 15) is engaged, the light is likely to stay on.*
  - *While the Twilight mode (☞ pg. 15) is engaged, the light will not activate.*

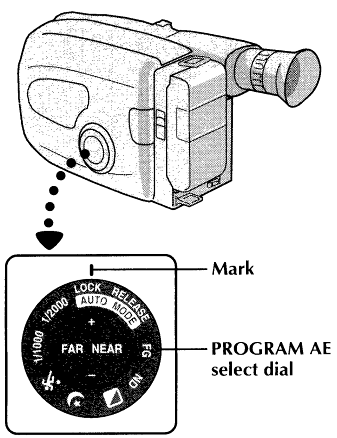
DANGER

- The video light become extremely hot. Do not touch it either while in operation or soon after turning it off, otherwise serious injury may result.
- Do not place the camcorder into the carrying case immediately after using the video light, since it remains extremely hot.
- When operating, keep a distance of about 30 cm. between the video light and people or objects.
- Do not use near flammable or explosive materials.
- It is recommended that you consult your nearest JVC dealer for replacing the video light.

1 second later, the mode is activated.



Viewfinder



Programme AE With Special Effects

All you have to do to access any of the variety of shooting effects is to turn the PROGRAM AE select dial.

1 SELECT MODE

Turn the PROGRAM AE select dial until the symbol of the function you want is aligned with the mark.

- The selected mode's name and its indication are displayed in the viewfinder for approx. 1 second. Then the name disappears, and only the indication remains. The mode is activated.
- When Auto Mode Lock or Auto Mode Release mode is selected, only the mode's name is displayed. Then the name disappears and the mode is activated.

NOTES:

- *Only one effect can be engaged at a time.*
- *The screen becomes slightly reddish when the fader (☞ pg. 18) is used in the Sepia mode.*
- *The screen becomes slightly dark in the High Speed Shutter mode. Use in well-lighted situations.*
- *In the High Speed Shutter or Sports modes, picture colour may be adversely affected if subject is lit by alternating discharge-type light sources such as flourescent or mercury-vapour lights.*

DIAL SYMBOL	VIEWFINDER INDICATION	MODE
LOCK	AUTO LOCK	Auto Mode Lock

Auto Mode Lock
Locks the camcorder in Full Auto mode, preventing incorrect operation due to accidental button pressing during shooting.

- In this mode the following controls are disabled; FADE, WIDE, TITLE, DISPLAY, M.W.B (Manual White Balance), Manual Focus, Focus Lock, Exposure Control and MENU

RELEASE	AUTO RELEASE	Auto Mode Release

Auto Mode Release
Re-enables the controls that were disabled by Auto Mode Lock.

DIAL SYMBOL	VIEWFINDER INDICATION	MODE
FG	FG:FOG	Electronic Fog Filter

Electronic Fog Filter
Makes the picture look misty white, as when an external fog filter is attached to the lens. Softens the image and gives it a "fancy" look.

ND	ND:ND EFFECT	ND Effect

ND Effect
A black mist darkens the picture, as when an ND filter is used. Helps to counter the effects of glare on the subject.

DIAL SYMBOL	VIEWFINDER INDICATION	MODE
◪	◪ SEPIA	Sepia

Sepia
The scene being shot is recorded in sepia-tinted (reddish-brown) monochrome, giving the effect of an older movie. Use together with Wide (☞ pg. 18) for the authentic look of a classic Hollywood movie.

☾	☾ TWILIGHT	Twilight

Twilight
Dusk, twilight scenery, fireworks, etc., look more natural and dramatic. The following happens when Twilight mode is selected:

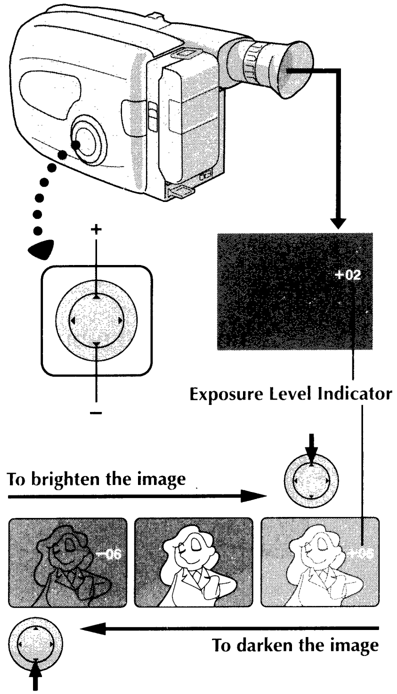
- Auto gain control is turned off.
- White Balance is set to "☀" (outdoor mode), but can also be manually changed to another mode (☞ pg. 21).
- Auto Focus becomes available only in the range of 10 m to infinity. To focus when the subject-to-camera distance is less than 10 m, use manual focusing (☞ pg. 17).

DIAL SYMBOL	VIEWFINDER INDICATION	MODE
🏃	🏃 SPORTS	Sports

Sports
High shutter speed clearly captures fast-moving action.

1/1000	1 S 1/1000	1/1000 sec. High Speed Shutter
1/2000	2 S 1/2000	1/2000 sec. High Speed Shutter

High-Speed Shutter (1/1000s., 1/2000s.)
Captures faster action than Sports mode.



Exposure Control

This feature automatically adjusts the iris for the best available picture quality, but you can override and make the adjustment manually.

1 SELECT MODE

Turn the PROGRAM AE select dial to any position except AUTO LOCK.

2 BRIGHTEN IMAGE

Press + (maximum +06). The Exposure level indicator appears in the viewfinder.

OR . . .

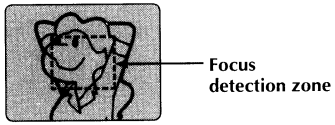
DARKEN IMAGE

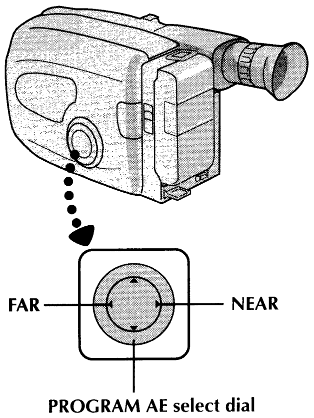
Press – (maximum –06). The Exposure level indicator appears in the viewfinder.

When you want to return to the factory setting . . .

3 RESTORE INITIAL SETTING

Press + and – simultaneously. The standard setting is immediately restored and the Exposure level indicator disappears.





Focusing

Auto Focus

The camcorder's Full Range AF system offers continuous shooting ability from close-up to infinity. However, correct focus may not be obtainable in the situations listed below (in these cases use manual focusing):

- When two subjects overlap in the same scene.
- When illumination is low.*
- When the subject has no contrast (difference in brightness and darkness), such as a flat, one-colour wall, or a clear, blue sky.*
- When a dark object is barely visible in the viewfinder.*
- When the scene contains minute patterns or identical patterns that are regularly repeated.
- When the scene is affected by sunbeams or light reflecting off the surface of a body of water.
- When shooting a scene with a high-contrast background.

* The low-contrast warning "▲◀ ▶♟" appears in the viewfinder.

Focus Lock

This feature locks the focus in place, which is especially helpful in the following situations:

- When things pass between your subject and the camcorder. Engage the focus lock function to lock your subject in before recording.
- When you want your subject to be focused, and to appear in a corner of the screen. First, center on the subject and focus using auto focus mode. Then engage the focus lock function and move the camcorder until the subject is where you want it.

1 SELECT MODE

Turn the PROGRAM AE select dial to any position except AUTO LOCK.

2 LOCK FOCUS

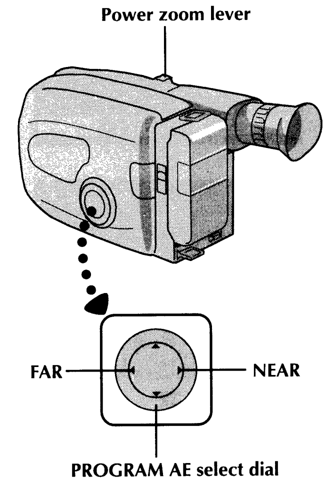
Press **FAR** or **NEAR**. The focus lock indication "▲♟" appears in the viewfinder.

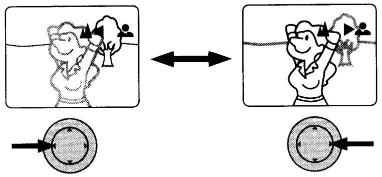
3 RELEASE FOCUS LOCK

Press **FAR** and **NEAR** simultaneously. The focus lock indication disappears.

NOTES:

- *If the lens is smeared or blurred, accurate focusing is not possible. Keep the lens clean, wiping with a piece of soft cloth if it gets dirty. When condensation occurs, wipe with a soft cloth or wait for it to dry naturally.*
- *When shooting a subject close to the lens, zoom-out first (☞ pg. 11). If zoomed-in in the auto focus mode, the camcorder could automatically zoom out depending on the distance between the camcorder and the subject. *When Tele Macro (☞ pg. 23) is activated, the camcorder will not zoom out automatically.*





Manual Focus

NOTE:

You should already have made the necessary viewfinder adjustments (☞ pg. 6). If you haven't, do so before continuing.

1 SELECT MODE

Turn the PROGRAM AE select dial to any position except AUTO LOCK.

2 ADJUST FOCUS

To farther subject . . .

Press and hold **FAR**. The Manual Focus indications "▲◀ ♟" appear and "◀" blinks.

Go to step **3**.

To nearer subject . . .

Press and hold **NEAR**. The Manual Focus indications "▲ ▶♟" appear and "▶" blinks.

Go to step **3**.

3 LOCK FOCUS

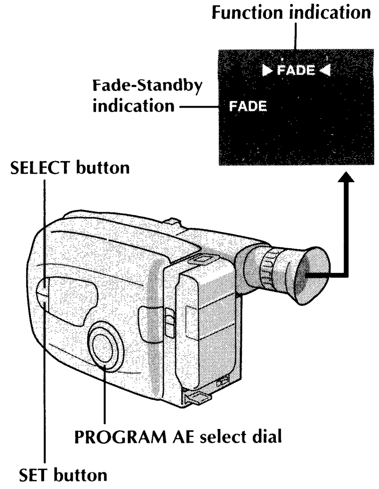
Release **FAR** or **NEAR**. The focus indication is replaced by the focus lock indication "▲♟" and the adjusted focus is locked in.

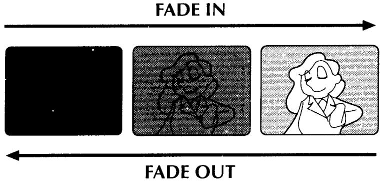
4 RELEASE MANUAL FOCUS MODE

Press **FAR** and **NEAR** simultaneously. The Manual Focus mode is immediately released and the focus lock indication disappears.

NOTES:

- *Be sure to focus the lens in the maximum telephoto position when you use the Manual Focus mode. If you focus in on a certain subject in the wide-angle position, sharply focused images cannot be obtained when zoomed up because the depth-of-field is reduced at longer focal lengths.*
- *When the focus level cannot be adjusted any farther or closer, "▲" or "♟" will blink.*





Fader

This feature allows smooth fade-in and fade-out to black blank screen. Fade-in works at recording start, and fade-out works at recording end or when you enter Record–Standby mode.

1 SELECT MODE

Turn the PROGRAM AE select dial to any position except AUTO LOCK.

2 SELECT FUNCTION

Press **SELECT** repeatedly until "**▶FADE◀**" appears.

3 ENGAGE FADE–STANDBY MODE

Press **SET** to engage the Fade–Standby mode. The Fade-Standby indication "FADE" is displayed.

4 START RECORDING

Press Recording Start/Stop to start recording and activate fade-in.

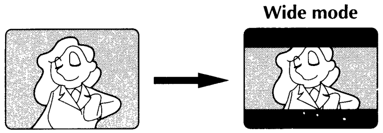
OR . . .

END RECORDING

Press Recording Start/Stop to end recording and engage fade-out.

NOTES:

- *Pressing and holding the Recording Start/Stop button allows you to record a black blank screen.*
- *The screen becomes slightly reddish when the Fader is used with Sepia (☞ pg. 15).*
- *With the Electronic fog filter mode (☞ pg. 14) engaged, the image fades in/out to a white screen.*



Wide

This feature allows you to record black bars at the top and bottom of the screen to produce a cinema-like "wide-screen" effect.

1 SELECT MODE

Turn the PROGRAM AE select dial to any position except AUTO LOCK.

2 SELECT FUNCTION

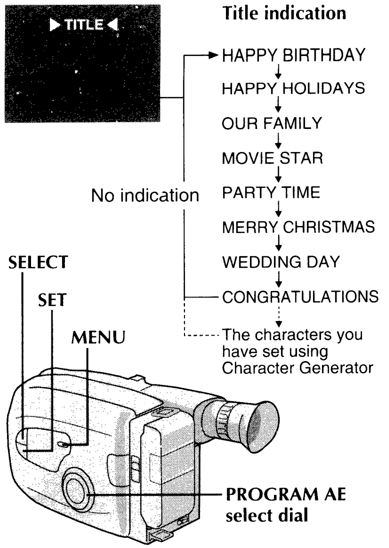
Press **SELECT** repeatedly until "**▶WIDE◀**" appears.

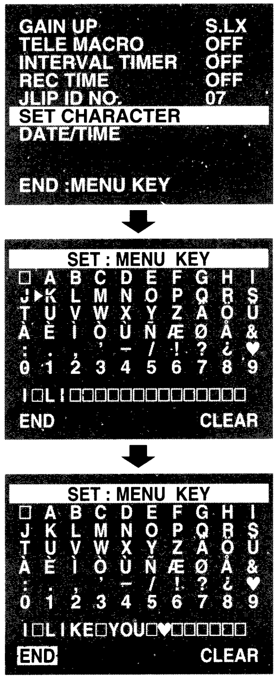
3 ENGAGE WIDE MODE

Press **SET**.

4 RESTORE NORMAL SCREEN

Press **SET** again while "**▶WIDE◀**" appears.





GAIN UP S.LX
TELE MACRO OFF
INTERVAL TIMER OFF
REC TIME OFF
JLIP ID NO. 07
SET CHARACTER
DATE/TIME

END :MENU KEY

SET : MENU KEY
□ A B C D E F G H I
J ▶K L M N O P Q R S
T U V W X Y Z Ä Ö Ü
À È Ì Ò Ù Ñ Æ Ø Å &
: . , ' – / ! ? ¿ ♥
0 1 2 3 4 5 6 7 8 9
I□LI□□□□□□□□□□□□□□
END CLEAR

SET : MENU KEY
□ A B C D E F G H I
J K L M N O P Q R S
T U V W X Y Z Ä Ö Ü
À È Ì Ò Ù Ñ Æ Ø Å &
: . , ' – / ! ? ¿ ♥
0 1 2 3 4 5 6 7 8 9
I□LIKE□YOU□♥□□□□□□
END CLEAR

Instant Titles

The camcorder has eight preset titles in memory. You can superimpose one of them above a previously stored title as shown in the illustration to the left.

DISPLAY

1 SELECT MODE

Turn the PROGRAM AE select dial to any position except AUTO LOCK.

2 SELECT FUNCTION

Press **SELECT** repeatedly until "**▶TITLE◀**" appears.

3 SELECT PRESET TITLE

Engage the Record–Standby mode, then press **SET** to cycle through the preset titles until the desired title is displayed.

NOTES:

- *To delete the Instant Title during recording, press **SET**.*
- *To recall a title, engage the Record–Standby mode and then press **SET** to select the desired title.*

Character Generator

You can enter an original title of up to 18 characters.

1 ACCESS MENU SCREEN

Turn the PROGRAM AE select dial to any position except AUTO LOCK, then press **MENU**.

2 ACCESS CHARACTER SET MENU

Press + or – to move the highlight bar to "SET CHARACTER", then press **NEAR**. The Character Set menu appears.

3 INPUT CHARACTERS

Press +, –, **FAR** or **NEAR** to move the pointer to the desired character, then press **MENU**. The selected characters appear at the bottom of the screen. Repeat as many times as desired (max. 18).

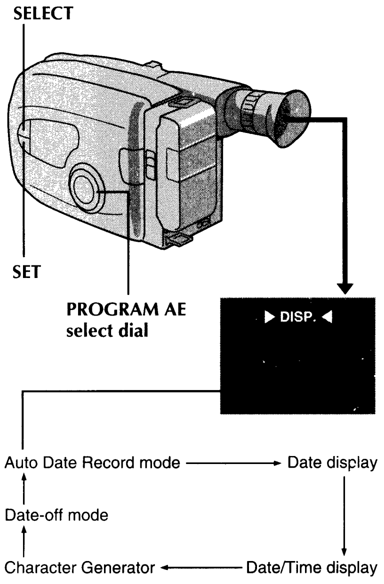
- To select the location of the next character, press +, –, **FAR** or **NEAR** to highlight the row of squares at the bottom of the screen, then press **FAR** or **NEAR** to make the desired location blink. Press + when you're done, and the pointer returns to the character grid.

4 END CHARACTER SETTING

Press +, –, **FAR** or **NEAR** to make "END" blink, then press **MENU** twice to return to the normal screen.

NOTES:

- *To erase a character you entered mistakenly, make "CLEAR" blink by pressing +, –, **FAR** or **NEAR**, then press **MENU**. All characters are deleted at once. Or, to erase selected characters only, first move the pointer to the row of squares by pressing +, –, **FAR** or **NEAR** to highlight them. Press **FAR** or **NEAR** to make the desired character blink, then press +, **FAR** or **NEAR** to move the pointer to "□" in the top left corner. Press **MENU**.*
- *To display the characters you have set — "Instant Titles" or "Date/Time/Character Insert" (☞ pg. 20).*
- *Characters may be set only in the Record–Standby mode.*



Auto Date Record mode	
AUTO DATE Auto date record mode	25.12.97 Auto date record executed
Date display	**Date/Time display**
25.12.97	25.12.97 10:45
Character Generator	
SET CHAR No Characters stored	IN PARIS, FRANCE Example of stored characters

Date/Time Character Insert

This feature allows you to display date, time and characters in your viewfinder and on a connected colour monitor, record them manually or automatically, and even make your own titles.

NOTE:

You should already have performed the Date/Time Setting procedure (☞ pg. 7). If you haven't, do so before continuing.

DISPLAY

1 SELECT MODE

Turn the PROGRAM AE select dial to any position except AUTO LOCK.

2 SELECT DISPLAY

Press **SELECT** repeatedly until "**▶DISP.◀**" appears.

3 CHOOSE DISPLAY MODE

Press **SET** while in Record–Standby to cycle through the modes as shown in the illustration at left.

NOTES:

- *The selected display can be recorded.*
- *If you don't want to record the display, select Date-off mode before shooting.*
- *If you want to delete the display during shooting, press **SET**.*
- *If you want to call back a deleted display, engage the Record–Standby mode and then select the desired display mode using **SET**.*

AUTO DATE RECORD

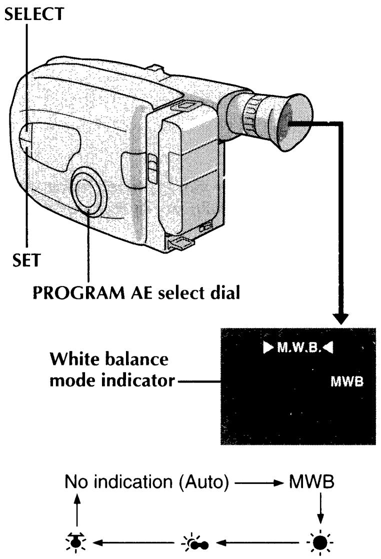
Your camcorder automatically records the date for about 5 seconds after recording is initiated in the following situations:

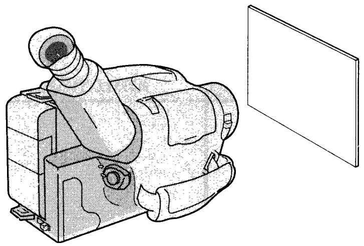
- After changing the date.
- After loading a cassette.
- After Auto Date Record mode is selected by pressing SET.

In this mode, the date is replaced after 5 seconds with "AUTO DATE".

NOTES:

- *Setting **PROGRAM AE** to LOCK always engages this mode, and disables all other modes.*
- *In the Auto Date Record mode, if the date changes while you're shooting, the date indication is recorded for about 5 seconds from that point. It is not recorded during any other recordings made on that day.*





Manual White Balance Adjustment (M.W.B.)

This camcorder's Automatic Colour Temperature system senses the colour temperature of the ambient lighting for automatic white balance adjustment. However, precise colour adjustment is not possible under the following conditions:

- When an object is in various shades of the same colour.
- When a predominantly red or brown object is being shot outdoors.

In these cases, use the camcorder's built-in preset filters for white balance adjustment.

1 SELECT MODE

Turn the PROGRAM AE select dial to any position except AUTO LOCK.

2 SELECT FUNCTION

Press **SELECT** reapeatedly until "**▶M.W.B.◀**" appears.

3 SELECT WHITE BALANCE

Press **SET** (Manual White Balance) until the required indication appears in the viewfinder.

"MWB"	With a memorized personal White Balance setting (see below)
"☀"	Outdoors on sunny day
"☁"	Outdoors on cloudy day
"✹"	Light source is halogen or tungsten lamp

MWB

MWB sets the colour temperature for the subject's light source so you can shoot with natural colours that are unaffected by surroundings, even when there are multiple subjects with different colour temperatures.

1 SELECT MODE

Turn the PROGRAM AE select dial to any position except AUTO LOCK.

2 ADJUST FOCUS

Point the camcorder at a white, flat object such as a sheet of white paper, and adjust focus manually (☞ pg. 17).

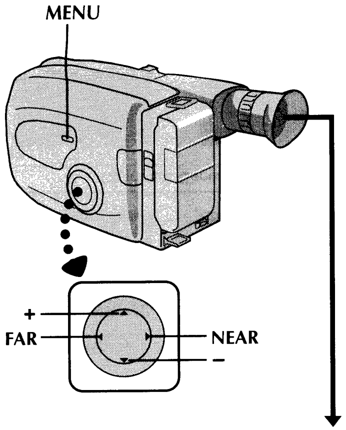
3 ADJUST WHITE BALANCE

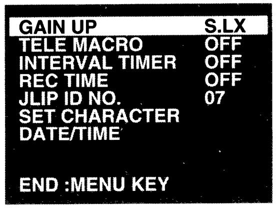
Press **SET** until "MWB" appears, then press and hold **SET** for more than 3 seconds.

- "MWB" blinks in the viewfinder during adjustment, then stops blinking but stays lit when adjustment is complete.

NOTES:

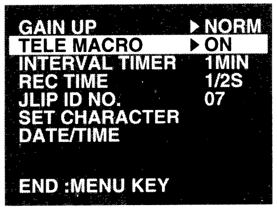
- *To switch to automatic white balance adjustment, press **SET** until the indication disappears, or turn the PROGRAM AE select dial to "AUTO LOCK".*
- *Re-adjust the White Balance when the lighting has changed, when the camcorder has been turned on and off again, or when the PROGRAM AE select dial's position has been changed.*
- *It is helpful to connect your camcorder to a colour monitor when adjusting the white balance ("Basic Connections" ☞ pg. 27).*
- *When adjusted by putting coloured paper in front of the subject in step **2** ("ADJUST FOCUS"), this unit makes its colour temperature standard for automatic white balance. So you can enjoy shooting with different colours. For example, when adjusting with red, blue or yellow colours, the image becomes the colour which aproximates to green, orange or purple respectively.*





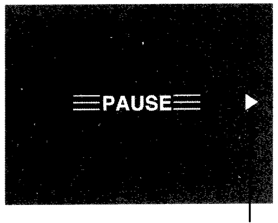
```
GAIN UP          S.LX
TELE MACRO       OFF
INTERVAL TIMER   OFF
REC TIME         OFF
JLIP ID NO.      07
SET CHARACTER
DATE/TIME

END :MENU KEY
```



```
GAIN UP          ▶NORM
TELE MACRO       ▶ON
INTERVAL TIMER   1MIN
REC TIME         1/2S
JLIP ID NO.      07
SET CHARACTER
DATE/TIME

END :MENU KEY
```



```
≡PAUSE≡   ▶
```

If GAIN UP or TELE MACRO in the Menu has been changed from the factory settings, this mark appears in the viewfinder.

Using Menu For Detailed Adjustment

This camcorder is equipped with Program Manager, an easy-to-use, on-screen menu system that simplifies many of the more detailed camcorder settings.

1

SELECT MODE

Turn the PROGRAM AE select dial to any position except AUTO LOCK.

2

ACCESS MENU SCREEN

Press **MENU**.

3

SELECT FUNCTION

Press + or – to place the highlight bar on the desired function.

4

MAKE SETTING

The setting procedure depends on the function you select.

If you select GAIN UP, TELE MACRO, INTERVAL TIMER, REC TIME or JLIP ID NO. . . .

.... press **FAR** or **NEAR** to cycle through the choices until the desired setting appears.

If you select SET CHARACTER or DATE/TIME, . . .

.... press **NEAR** to access the selection menu for each function (SET CHARACTER – ☞ pg. 19; DATE/TIME – ☞ pg. 7).

5

CLOSE MENU

Press **MENU**. The normal screen reappears.

NOTE:

The menu is available only in the Record-Standby mode.

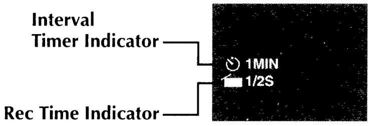
MENU

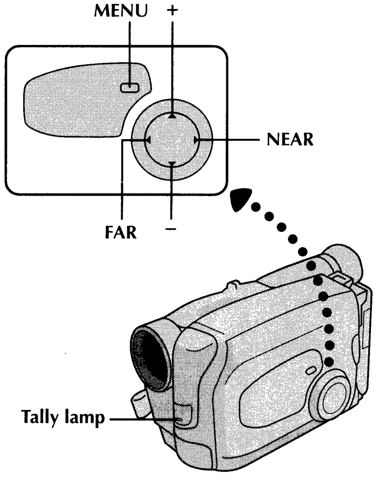
GAIN UP	**S.LX**	To record a subject in a dark lit environment. When it is more convenient to shoot the subject with a brighter image even if the picture becomes slightly coarse. Automatically selected when the PROGRAM AE select dial is set to AUTO LOCK mode. **(S.LX : Super LoLux)**
	▶ NORM	To record a subject in a dimly lit environment. When it is more convenient to shoot with a less coarse picture although the subject becomes slightly dark.
	▶ OFF	Allows you to shoot dark scenes with no picture brightness adjustment.
TELE MACRO	**OFF**	Usually set to this position.
	▶ ON	Usually the distance to a subject where the lens is in focus depends on the zoom magnification. Unless there is a distance more than 1m to the subject, the lens is out of focus at the maximum telephoto setting. When set to "ON", you can shoot a subject as large as possible at a distance of approx. 60 cm. • Depending on the zoom position, the lens may go out of focus.
INTERVAL TIMER	**OFF** **15 S** **30 S** **1 MIN** **5 MIN**	This feature allows you to set the parameters for Self-Timer (☞ pg. 24) and Time-Lapse recording (☞ pg. 25).
REC TIME	**OFF** **1/4 S** **1/2 S** **1 S**	This feature allows you to set the parameters for Animation and Time-Lapse recording (☞ pg. 25).
JLIP ID NO.	This number is necessary when connecting the camcorder to a device such as a computer using the J terminal (JLIP). The numbers range from 01 to 99. Factory setting is 07.	
SET CHARACTER	Allows you to input characters. (☞ pg. 19).	
DATE/TIME	Allows you to set the current date and time (☞ pg. 7).	

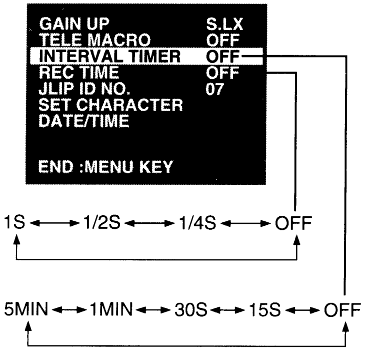
▨ = **Factory setting and when the PROGRAM AE Select Dial is set to AUTO LOCK**

NOTE:

During shooting in low light, Auto Focus accuracy may decrease even when Gain Up is used. In this case, use Manual Focus (☞ pg. 17).






GAIN UP S.LX
TELE MACRO OFF
INTERVAL TIMER OFF
REC TIME OFF
JLIP ID NO. 07
SET CHARACTER
DATE/TIME

END :MENU KEY

Self-Timer

You can set the delay between pressing **RECORDING START/STOP** and the actual start of recording. If you secure the camcorder, you (or whomever is operating the camcorder) can enter the scene before recording starts.

NOTE:

Make sure the camcorder is in the Record-Standby mode before performing the following steps.

1 ACCESS MENU SCREEN

Turn the PROGRAM AE select dial to any position except AUTO LOCK, then press **MENU**.

2 SET INTERVAL TIME

Press – or + to move the highlight bar down to "**INTERVAL TIMER**", then press **FAR** or **NEAR** to cycle through the choices. Stop when the desired time appears. Choose from "15S", "30S", "1MIN", "5MIN", or select to turn the function "OFF".

3 CLOSE MENU

Press **MENU**.

4 START DELAYED RECORDING

Press **RECORDING START/STOP**. The tally lamp begins blinking, and the blinking frequency increases about 5 seconds before recording is to start. Once recording begins, the lamp stops blinking but stays lit.

To Release Self-Timer . . .

..... while the tally lamp is blinking, press **RECORDING START/STOP** to stop the blinking, then set "**INTERVAL TIMER**" to "OFF".

Animation

Give stationary scenes or objects an illusion of movement. This function allows you to shoot a series of pictures, each slightly different, of the same object for a brief period of time.

NOTE:

Make sure the camcorder is in the Record-Standby mode before performing the following steps.

1 ACCESS MENU SCREEN

Turn the PROGRAM AE select dial to any position except AUTO LOCK, then press **MENU**.

2 SET RECORDING TIME

Press – or + to move the highlight bar down to "**REC TIME**", then press **FAR** or **NEAR** to cycle through the choices. Stop when the desired time appears. Choose from "1/4S", "1/2S", "1S", or select to turn the function "OFF". Then press **MENU** to close Menu screen.

3 START RECORDING

Press the Recording Start/Stop button after focusing on the subject. The recording stops automatically after the selected period of time.

4 ASSEMBLE SERIES OF PICTURES

Repeat step **3** for the desired number of pictures.

5 RELEASE ANIMATION MODE

Set "**REC TIME**" in the Menu screen to "OFF".

NOTES:

- *For best results, make sure the camcorder is secured when shooting in Animation or Time-Lapse mode.*
- *Fade-in/out cannot be performed during Animation or Time-Lapse shooting.*
- *Before performing other operations following Animation or Time-Lapse recording, make sure the Animation or Time-Lapse mode is deactivated.*

Time-Lapse

You can record sequentially at preset time spans. Leaving the camcorder aimed at a specific subject, you can record subtle changes over an extended period of time.

NOTE:

Make sure the camcorder is in the Record-Standby mode before performing the following steps.

1 ACCESS MENU SCREEN

Turn the PROGRAM AE select dial to any position except AUTO LOCK, then press **MENU**.

2 SET INTERVAL BETWEEN RECORDINGS

Press – or + to move the highlight bar down to "**INTERVAL TIMER**", then press **FAR** or **NEAR** to cycle through the choices. Stop when the desired time appears. Choose from "15S", "30S", "1MIN", "5MIN", or select to turn the function "OFF".

3 SET RECORDING TIME

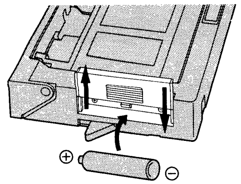
Press – or + to move the highlight bar down to "**REC TIME**", then press **FAR** or **NEAR** to cycle through the choices. Stop when the desired time appears. Choose from "1/4S", "1/2S", "1S", or select to turn the function "OFF". Then press **MENU** to close Menu screen.

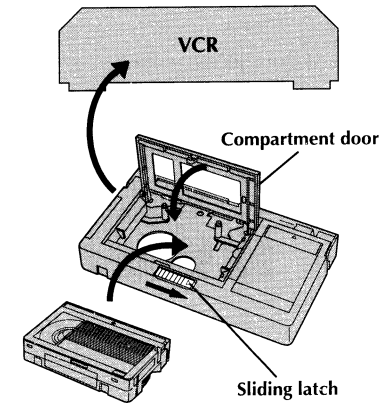
4 START TIME-LAPSE RECORDING

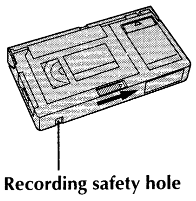
Press the Recording Start/Stop button. Recording and intervals alternate automatically.

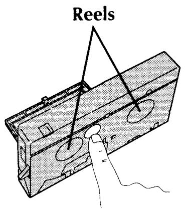
5 RELEASE TIME-LAPSE MODE

To release when the tally lamp is not blinking, set "**REC TIME**" and "**INTERVAL TIMER**" in the Menu screen to "OFF". To release when the tally lamp is blinking, press the Recording Start/Stop button to stop the blinking, then set "**INTERVAL TIMER**" and "**REC TIME**" in the Menu screen to "OFF".




VCR
Compartment door
Sliding latch
Compact video cassette


Recording safety hole



Cassette Adapter

Use this to play back a VHS-C video cassette recorded with this camcorder. It is fully compatible with any VHS video cassette recorder. The C-P7U adapter is battery powered and automatically performs tape loading and unloading.

1 INSERT BATTERY

Slide the battery cover up to remove it, and install one "R6(AA)" size battery as shown in the illustration at left. Then reattach the cover.

2 INSERT CASSETTE IN ADAPTER

Slide the latch to open the adapter compartment door, then insert the cassette and close the compartment door.

3 PLAY BACK ON CONNECTED VCR

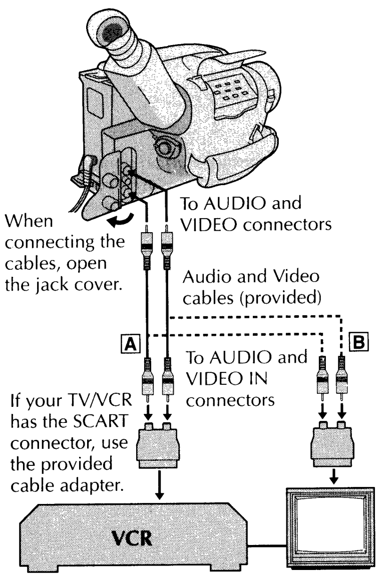
Load the cassette adapter into the VCR and play the tape back as you would any other.

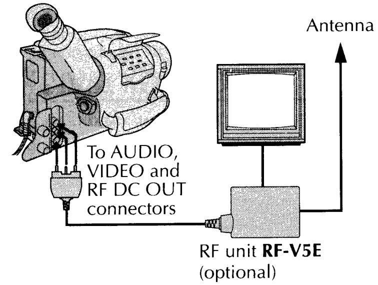
4 REMOVE CASSETTE FROM ADAPTER

Slide the latch and the compartment door opens automatically. Then insert your finger in the hole on the underside of the adapter as shown in the illustration at left, push up and remove the cassette.

NOTES:

- *During tape loading and unloading, do not touch the reels for safety and tape protection.*
- *During special-effect playback (slow motion, still frame, etc.), the picture may vibrate or noise bars may appear on the screen.*
- *To record on a VCR using a compact cassette and the adapter, cover the adapter's recording safety hole with adhesive tape.*


When connecting the cables, open the jack cover.
To AUDIO and VIDEO connectors
Audio and Video cables (provided)
A
B
To AUDIO and VIDEO IN connectors
If your TV/VCR has the SCART connector, use the provided cable adapter.
VCR


Antenna
To AUDIO, VIDEO and RF DC OUT connectors
RF unit RF-V5E (optional)

NOTES:

- *It is recommended to use the AC Power Adapter/Charger as the power supply instead of the battery pack.*
- *To monitor the picture and sound from the camcorder without inserting a tape, set the camcorder's Power switch to "CAMERA", then set your TV to the appropriate input mode.*
- *If you have a TV or speakers that are not specially shielded, do not place the speakers adjacent to the TV as interference will occur in the camcorder playback picture.*

There are three basic types of connections. When making the connections, refer also to your VCR and TV instruction manuals.

Connection To A VCR [A] (Editing, Dubbing and Playback)

NOTE:

Use the provided Audio and Video cables.

1 CONNECT CAMCORDER TO VCR

As shown in the illustration at left, connect the Audio and Video cables between the AUDIO and VIDEO connectors on the camcorder and those on the VCR.

2 SUPPLY POWER

Turn on the camcorder, the VCR and the TV.

3 SELECT MODE

Set the VCR to its AUX input mode, and set the TV to its VIDEO mode.

Connection To A TV With A/V Input Connectors [B] (Playback ONLY)

NOTE:

Use the provided Audio and Video cables.

1 CONNECT CAMCORDER TO TV

As shown in the illustration at left, connect the Audio and Video cables between the AUDIO and VIDEO connectors on the camcorder and those on the TV.

2 SELECT MODE

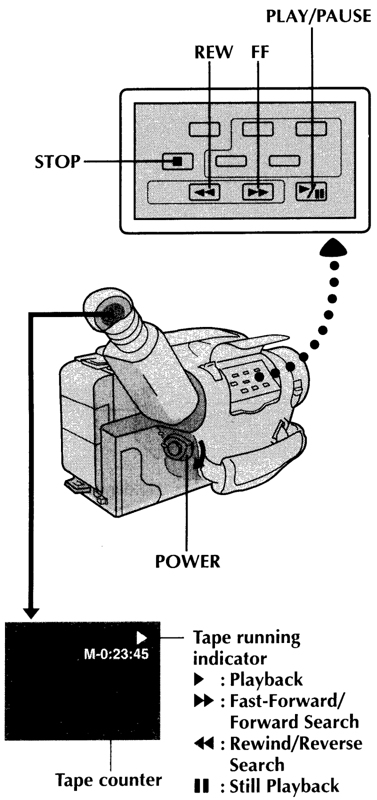
Set the TV to its VIDEO or AV mode (as specified in its instructions).

Connection To A TV With NO A/V Input Connectors (Playback ONLY)

NOTE:

Use the optional RF-V5E RF unit.

* Refer to the RF-V5E instruction manual for connection procedure.



NOTE:

Make sure you connect your camcorder as directed in "Basic Connections" (☞ pg. 27).

1 LOAD A CASSETTE

Slide EJECT to open the cassette holder, then insert the cassette with the label facing out. Press PUSH to ensure the holder is closed and locked.

2 SELECT MODE

Set the Power switch to "PLAY". The Power On indicator lights.

3 PLAYBACK

Press **PLAY/PAUSE**. The playback picture appears in the viewfinder and the connected TV.

4 STOP PLAYBACK

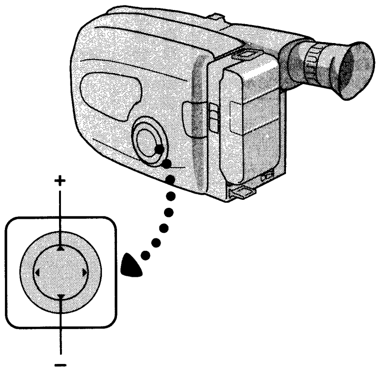
Press **STOP**.

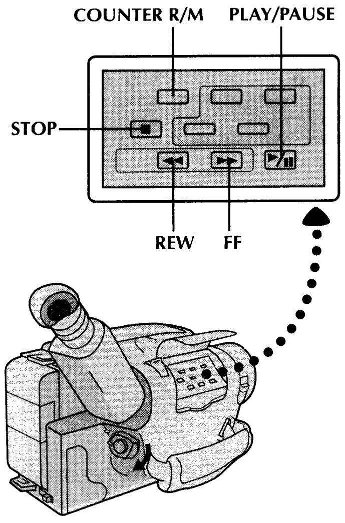
Rewind or Fast-forward the tape

Press **REW** to rewind, or **FF** to fast-forward the tape during Stop mode.

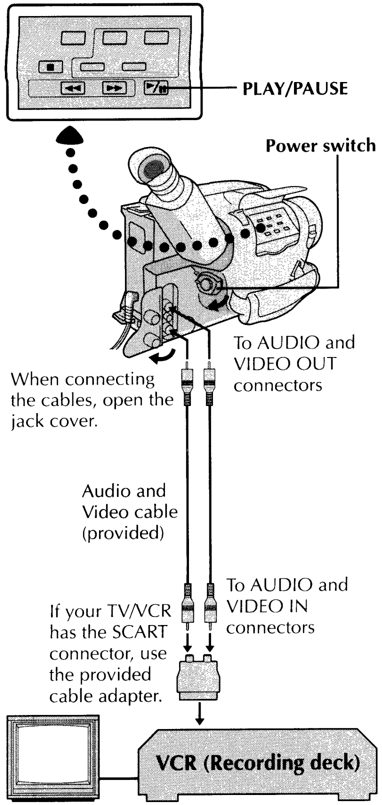
NOTE:

The camcorder shuts off automatically after about 5 minutes in Stop mode or Still Playback mode. To turn on again, set the Power switch to "POWER OFF", then to "PLAY".





FEATURE:	**Manual Tracking**
PURPOSE:	To eliminate noise bars that appear on the screen during playback.
OPERATION:	**1)** Press either **+/–** button as many times as necessary for best picture.
NOTES:	• *To reset TRACKING to the original preset, press both + and – buttons simultaneously.* • *Manual Tracking may not work with tapes recorded on other VCRs or camcorders.*
FEATURE:	**Still Playback**
PURPOSE:	To pause during playback.
OPERATION:	**1)** Press **PLAY/PAUSE** during playback. **2)** To resume normal playback, press **PLAY/PAUSE** again.
NOTE:	*Noise bars appear and pictures may become monochrome during Still Playback. This is normal.*
FEATURE:	**Shuttle Search**
PURPOSE:	To allow high-speed search in either direction.
OPERATION:	***Forward Search*** **1)** Press **FF** during playback. ***Reverse Search*** **1)** Press **REW** during playback.
NOTE:	*Noise bars appear and pictures may become monochrome or darken in Shuttle Search. This is normal.*
FEATURE:	**Counter Memory Function**
PURPOSE:	To make it easier to locate a specific tape segment.
OPERATION:	**1)** Press **COUNTER R/M** and hold for more than 2 seconds. The counter resets to "0:00:00". **2)** Press **COUNTER R/M**. "M" appears. **3)** After recording or playback, press **STOP**, then **REW**. The tape automatically stops at or close to 0:00:00. **4)** Press **PLAY/PAUSE** to start playback.
NOTES:	• *The counter memory functions in the FF and REW modes.* • *To disable Counter Memory Function, press **COUNTER R/M** so the "M" disappears.*


PLAY/PAUSE
Power switch
To AUDIO and VIDEO OUT connectors
When connecting the cables, open the jack cover.
Audio and Video cable (provided)
To AUDIO and VIDEO IN connectors
If your TV/VCR has the SCART connector, use the provided cable adapter.
VCR (Recording deck)

Tape Dubbing

1 CONNECT EQUIPMENT

Following the illustration at left, connect the camcorder and the VCR.

2 PREPARE FOR DUBBING

Set the camcorder's Power switch to "PLAY", turn on the VCR's power, and insert the appropriate cassettes in the camcorder and the VCR.

3 SELECT VCR MODE

Engage the VCR's AUX and Record-Pause modes.

4 FIND EDIT-IN POINT

Engage the camcorder's Play mode to find a spot just before the edit-in point. Once it's reached, press **PAUSE** on the camcorder.

5 START EDITING

Press **PLAY** on the camcorder and engage the VCR's Record mode.

6 STOP EDITING TEMPORARILY

Engage the VCR's Record-Pause mode and press **PAUSE** on the camcorder.

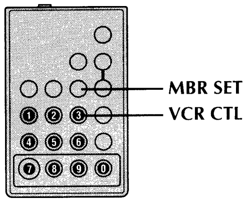
7 EDIT MORE SEGMENTS

Repeat steps **4** through **6** for additional editing, then stop the VCR and camcorder when finished.

Random Assemble Editing [R.A.Edit]

Create edited videos easily using your camcorder as the source player. You can select up to 8 "cuts" for automatic editing, in any order you like. R.A.Edit is more easily performed when the MBR (Multi-Brand Remote RM-V704U or RM-V700U) is set to operate with your brand of VCR (see VCR CODE LIST), but can also be performed by operating the VCR manually.

- The RM-V704U/V700U is provided with the GR-AX470 and is available optionally for the GR-AX370/AX270.



RM-V704U or RM-V700U

VCR CODE LIST

VCR BRAND NAME	BUTTONS (A) (B)
AKAI	❻ ❷ ❻ ❹ ❼ ❼
BLAUPUNKT	❶ ❸
FERGUSON	❾ ❼ ❾ ❽ ❸ ❷
GRUNDIG	❶ ❹ ❸ ❹
HITACHI	❻ ❻ ❻ ❸
JVC A B C	❾ ❶ ❾ ❻ ❾ ❸
MITSUBISHI	❻ ❼ ❻ ❽
NEC	❸ ❼ ❸ ❽
PANASONIC	❶ ❸ ❶ ❼ ❶ ❶ ❾ ❹ ❶ ❽
PHILIPS	❶ ❾ ❾ ❺ ❶ ❶ ❾ ❹ ❾ ❶ ❾ ❻ ❶ ❷ ❸ ❸
SANYO	❸ ❻ ❸ ❺
SELECO, REX	❾ ❶ ❾ ❻
SHARP	❶ ❺ ❶ ⓿
SONY	❻ ❺ ❻ ⓿ ❸ ❾ ❸ ❶
THOMSON, TELEFUNKEN, SABA, NORDMENDE	❾ ❶ ❾ ❻ ❾ ❼ ❸ ❷
TOSHIBA	❻ ❾ ❻ ❶

SET REMOTE/VCR CODE

1 SET REMOTE TO OPERATE VCR

Turn off the power to the VCR and point the remote toward the VCR's infrared sensor. Then, referring to the VCR CODE LIST on the left, press and hold **MBR SET**, and press button (A) and then (B).

- The code is automatically set once you release the **MBR SET** button, and the VCR's power comes on.

2 OPERATE THE VCR

Make sure the VCR's power is on. Then, while holding **VCR CTL**, press the button on the remote for the desired function. The functions the remote can control are PLAY, STOP, PAUSE, FF, REW and VCR REC STBY (you don't need to press **VCR CTL** for this one).

You're now ready to try Random Assemble Editing.

IMPORTANT

Although the MBR is compatible with JVC VCRs and those of many other makers, it may not work with yours or may offer limited functions.

NOTES:

- *If the VCR's power doesn't come on in step **1**, try another code from the VCR CODE LIST.*
- *Some brands of VCR don't come on automatically. In this case, turn the power on manually and try step **2**.*
- *If the RM-V704U/V700U is not able to control the VCR, use the controls on the VCR.*
- *The RM-V704U/V700U cannot be used to operate the GR-AX370/AX270.*

MAKE CONNECTIONS

1 CONNECT TO . . .

A JVC VCR EQUIPPED WITH REMOTE PAUSE TERMINAL

Connect the editing cable to the Remote PAUSE terminal.

B JVC VCR NOT EQUIPPED WITH REMOTE PAUSE TERMINAL

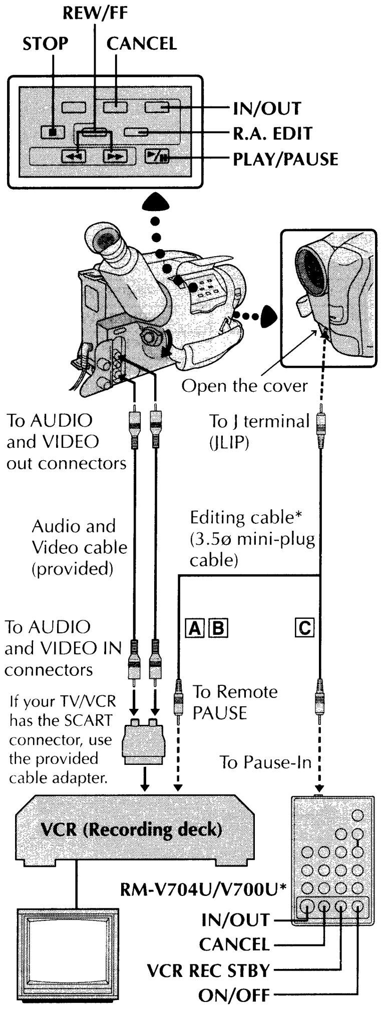
Connect the editing cable to the R.A.EDIT connector.

C NON-JVC VCR WITH NEITHER

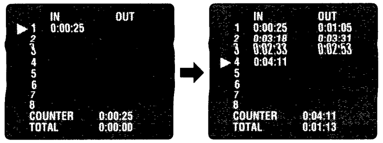
Connect the editing cable to the RM-V704U/V700U's Pause-In jack.

All other connections are as shown in the illustration on page 32.

CONTINUED ON NEXT PAGE


REW/FF
STOP
CANCEL
IN/OUT
R.A. EDIT
PLAY/PAUSE
Open the cover
To AUDIO and VIDEO out connectors
To J terminal (JLIP)
Audio and Video cable (provided)
Editing cable* (3.5ø mini-plug cable)
To AUDIO and VIDEO IN connectors
A B
C
If your TV/VCR has the SCART connector, use the provided cable adapter.
To Remote PAUSE
To Pause-In
VCR (Recording deck)
RM-V704U/V700U*
IN/OUT
CANCEL
VCR REC STBY
ON/OFF

*Provided with GR-AX470, optional for GR-AX370/AX270.



```
    IN          OUT
▶1  0:00:25
 2
 3
 4
 5
 6
 7
 8
 COUNTER    0:00:25
 TOTAL      0:00:00
```

```
    IN          OUT
 1  0:00:25     0:01:05
 2  0:03:18     0:03:31
 3  0:02:33     0:02:53
▶4  0:04:11
 5
 6
 7
 8
 COUNTER    0:04:11
 TOTAL      0:01:13
```

2 PREPARE CAMCORDER

Insert a recorded tape and set the Power switch to "PLAY".

3 PREPARE VCR

Turn the power on, insert a recordable tape and engage the AUX mode (refer to VCR's instructions).

SELECT SCENES

1 ACCESS R.A. EDIT COUNTER DISPLAY

Press **PLAY/PAUSE**, then press **R.A. EDIT** and the counter display appears in the viewfinder and the screen of the connected TV.

2 REGISTER BEGINNING OF SCENE

Press **REW** or **FF** to locate the beginning of a scene you want, then press **IN/OUT** to register that point. The data appears under IN on the display.

3 REGISTER END OF SCENE

Press **REW** or **FF** to locate the end of the scene and press **IN/OUT** to register it. The data appears under OUT on the display. The total time of the registered scene(s) is displayed at the bottom of the screen.

4 REGISTER ADDITIONAL SCENES

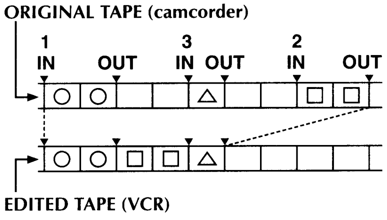
Repeat steps **2** and **3** for each additional scene (as many as 8).

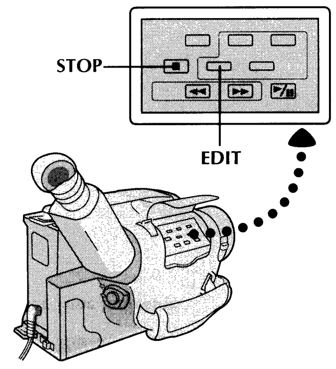
5 MAKE CORRECTIONS

Press **CANCEL** during steps **2** and **3** to erase the most recently registered point.

NOTES:

- *For GR-AX470 only: The RM-V704U/V700U can be used to operate other camcorder functions as well. Point the RM-V704U/V700U at the camcorder's remote sensor and press any of the following buttons (function apears in parentheses):*
  - *— ON/OFF (camcorder R.A. EDIT)*
  - *— IN/OUT (camcorder IN/OUT)*
  - *— CANCEL (camcorder CANCEL)*
- *There must be at least one second between an in-point and its corresponding out-point.*
- *To ensure correct operation, leave at least 15 seconds open between scenes.*
- *Blank portions of tape cannot be registered as in-points or out-points.*
- *If it takes more than 5 minutes to search for an in-point, the VCR's Record-Pause mode is cancelled and editing doesn't take place.*
- *Pressing **R.A.EDIT** clears all in- and out-points from memory.*
- *Leave a small margin for error around each in-point to ensure the scene is recorded in its entirety.*


ORIGINAL TAPE (camcorder)
1
3
2
IN
OUT
IN
OUT
IN
OUT
EDITED TAPE (VCR)



AUTOMATIC EDITING TO VCR

1 ENGAGE VCR'S RECORD–PAUSE MODE

Point the remote control toward the VCR's infrared sensor and press **VCR REC STBY**, or manually engage the VCR's Record-Pause mode.

2 BEGIN AUTOMATIC EDITING

Press **EDIT** on the camcorder, and the previously selected scenes are copied to the VCR in the specified order.

3 END AUTOMATIC EDITING

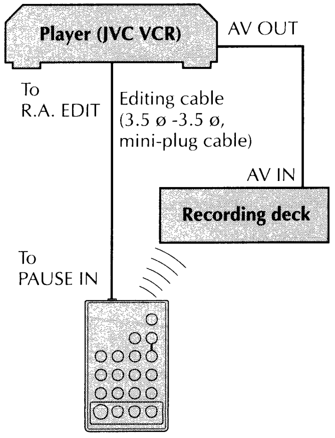
When all selected scenes have been copied, the camcorder and VCR enter the still or pause mode. Press **STOP** on both units.

- When finished editing, be sure to disconnect the editing cable and the audio/video cable.

NOTES:

- *If you performed step 1C on page 31 ("MAKE CONNECTIONS"), keep the remote control pointed at the VCR during editing.*
- *The on-screen display only appears while the camcorder searches for each scene.*
- *There may be noise at in- or out-points on the edited tape with certain VCRs.*

SUPPLEMENTAL INFORMATION ON THE REMOTE CONTROL


Player (JVC VCR)
AV OUT
To R.A. EDIT
Editing cable (3.5 ø -3.5 ø, mini-plug cable)
AV IN
Recording deck
To PAUSE IN

RM-V704U or RM-V700U (provided with GR-AX470, optional for GR-AX370/AX270)

Using the RM-V704U/V700U, it is also possible to perform deck-to-deck Random Assemble Editing. The playback deck must be an R.A. Edit-capable JVC VCR. The recording deck can be...

- ■ a VCR other than JVC, or
- ■ a JVC VCR which has **neither** a Remote PAUSE nor an R.A. EDIT connector

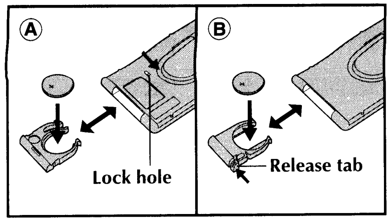
How to use:

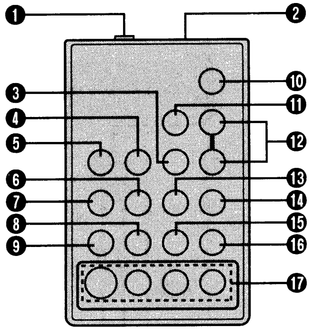
- — Connect the playback deck and RM-V704U/V700U as shown on the left.
- — Set the RM-V704U/V700U to correspond to the brand of the recording deck. (☞ pg. 31)
- — For Random Assemble Editing procedure, please refer to the instruction manual of the JVC VCR you are using as the playback deck.

Notes:

- ■ RM-V704U/V700U cannot be used to control the playback deck.
- ■ RM-V704U/V700U is capable of controling basic operations of the recording deck. While pressing VCR CTL, press PLAY, STOP, PAUSE, FF or REW for these functions. (Not possible with some brands and models). Other buttons cannot be used.
- ■ To put the recording deck in the Record-Pause mode, use the controls on the recording deck itself.

USING REMOTE CONTROL UNIT (GR-AX470 only)





RM-V704U or RM-V700U
(provided with GR-AX470 only)

The Full-Function Remote Control Unit can operate this camcorder from a distance as well as the basic operations (PLAY, STOP, PAUSE, FF, and REW) of your VCR. This remote control unit makes additional recording functions possible.

NOTE:

The remote controls cannot operate GR-AX370/AX270.

Installing The Battery

1 PULL OUT BATTERY HOLDER

Pull out the battery holder according to the type of remote control unit you have.

Type Ⓐ : Pull out the battery holder while sliding the lock hole.
Type Ⓑ : Pinch the release tab and pull out the battery holder.

2 INSERT BATTERY

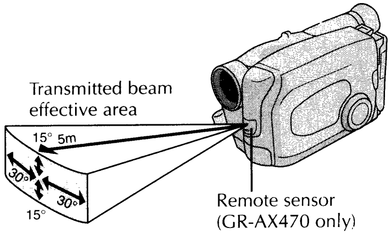
Making sure the plus (+) side is up, insert the lithium battery (CR2025)* into the battery holder.

3 REPLACE BATTERY HOLDER

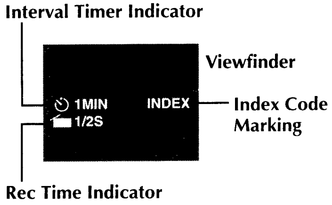
Insert the battery holder into the remote control unit, and push the holder until it clicks into place.

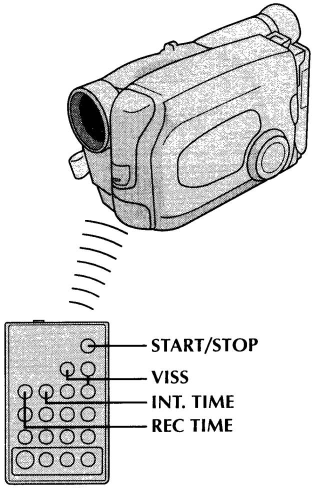
* Read the caution concerning lithium batteries (☞ pg. 2).

BUTTONS	FUNCTIONS	
	With the camcorder's power switch set to "CAMERA".	With the camcorder's power switch set to "PLAY".
❶ PAUSE IN Connector	—	☞ pg. 32
❷ Infrared beam transmitting window	Transmits the beam signal.	
❸ MBR SET Button	—	☞ pg. 31
❹ INT. TIME Button	Self-Timer/Time-Lapse (☞ pg. 35)	—
❺ REC TIME Button	Animation/Time-Lapse (☞ pg. 35)	—
❻ FF Button	Retake (forward) (☞ pg. 12)	FF/FF Shuttle Search (☞ pg. 28)
❼ REW Button	Retake (rewind)/Quick Review (☞ pg. 12)	Rew/Rew Shuttle Search (☞ pg. 28)
❽ PAUSE Button	—	Pause (☞ pg. 28)
❾ PLAY Button	—	Playback start (☞ pg. 28)
❿ START/STOP Button	Functions same as the Recording Start/Stop button on the camcorder.	
⓫ VISS Button	Index Code marking (☞ pg. 35)	—
⓬ ZOOM (T/W) Buttons	Zoom in and out (☞ pg. 11)	—
⓭ VCR CTL Button	—	☞ pg. 31
⓮ A.DUB Button	—	Audio dubbing (☞ pg. 37)
⓯ STOP Button	—	Stop (☞ pg. 28)
⓰ INSERT Button	—	Insert Editing (☞ pg. 36)
⓱ R.A.EDIT Buttons	—	☞ pg. 32


Transmitted beam effective area
15° 5m
30°
30°
15°
Remote sensor (GR-AX470 only)

When using the remote control, be sure to point it at the remote sensor. The above illustration shows the approximate transmitted beam effective area for indoor use.
The transmitted beam may not be effective or may cause incorrect operation outdoors or when the remote sensor is directly exposed to sunlight or powerful lighting.





RM-V704U or RM-V700U
(provided with GR-AX470 only)

FEATURE: **Self-Timer, Animation and Time-Lapse**

PURPOSE: The remote control lets you set/release Interval Timer and Rec Time functions as well as the Menu screen.

OPERATION:

Self-Timer

1) Set
Instead of performing steps **1** through **3** on pg. 24 ("Self-Timer"), press **INT. TIME** on the remote control. Each time **INT. TIME** is pressed, the Interval Timer indicator appears, changing in the following order: 15S, 30S, 1MIN, 5MIN and No indication (off).

2) Release
Instead of setting "INTERVAL TIMER" to "OFF" in the Menu, press **INT. TIME** on the remote control until the Interval Timer indicator disappears.

Animation

1) Set
Instead of performing steps **1** and **2** on pg. 25 ("Animation"), press **REC TIME** on the remote control. Each time **REC TIME** is pressed, the Rec Time indicator appears, changing in the following order: 1/4S, 1/2S, 1S and No indication (off).

2) Release
Instead of using the Menu in step **5** on pg. 25, press **REC TIME** on the remote control until the Rec Time indicator disappears.

Time-Lapse

1) Set
Instead of performing steps **1** through **3** on pg. 25 ("Time-Lapse"), press **INT. TIME** and **REC TIME** on the remote control. Each time **INT. TIME** is pressed, the Interval Timer indicator appears, changing in the following order: 15S, 30S, 1MIN, 5MIN and No indication (off). Each time **REC TIME** is pressed, the Rec Time indicator appears, changing in the following order: 1/4S, 1/2S, 1S and No indication (off).

2) Release
Instead of using the Menu in step **5** on pg. 25, press **INT. TIME** and **REC TIME** on the remote control until the indicators disappear.

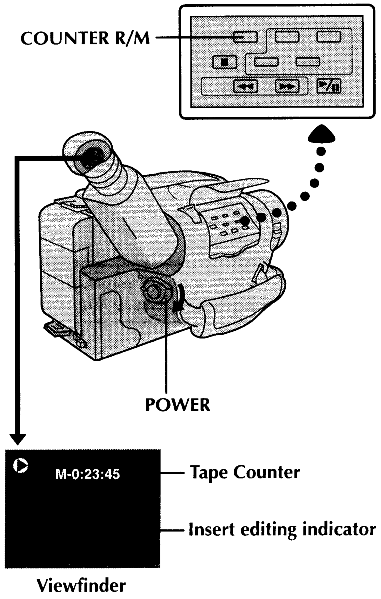
NOTE: *Also refer to pgs. 24 and 25.*

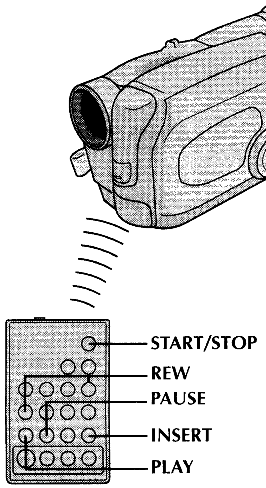
FEATURE: **Index Code Marking**

PURPOSE: To give you automatic access to any selected point on a recording.

OPERATION:
1) Press **VISS** once to place the index code. "INDEX" blinks in the viewfinder during marking.

NOTE: *If **VISS** is pressed during Record–Standby mode, the mark is placed where **RECORDING START/STOP** is pressed.*





RM-V704U or RM-V700U
(provided with GR-AX470 only)

Insert Editing

You can record a new scene into a previously recorded tape, replacing a section of the original recording with minimal picture distortion at the in- and out-points. The original audio remains unchanged.

NOTE:

Use the RM-V704U or RM-V700U remote control unit to perform this procedure.

1
SELECT MODE
Set the Power switch to "PLAY".

2
FIND EDIT-OUT POINT
Play back the tape, locate the point and press **PAUSE** on the camcorder or the remote control.

3
RESET COUNTER
Press and hold **COUNTER R/M** for more than 2 seconds to reset the tape counter, then press for less than 1 second and make sure "M" appears in the viewfinder.

4
FIND EDIT-IN POINT
Press **REW** to go a little beyond the beginning of the scene you want to replace, press **PLAY** to view the recorded tape, and press **PAUSE** at exactly at the point where the new scene should start.

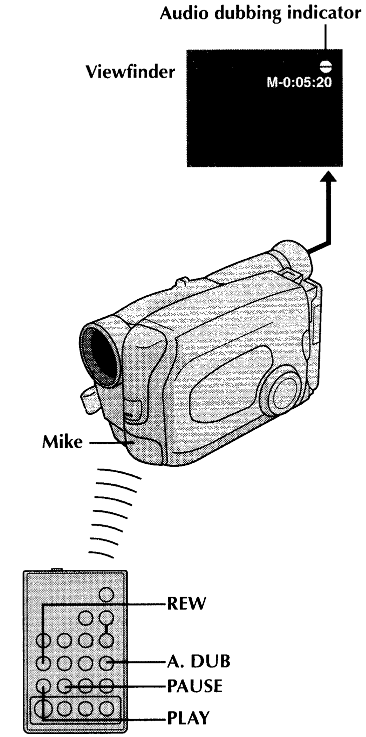
5
ENGAGE INSERT EDITING MODE
Press and hold **INSERT**, and without releasing **INSERT**, press and release **PAUSE**. The Insert mode is engaged, and the scene the camcorder is aimed at appears on the screen.

6
BEGIN INSERT EDITING
Press **RECORDING START/STOP**. When the counter reaches "0:00:00", editing stops automatically and the camcorder enters the Insert-Pause mode.

7
END INSERT EDITING
Press **STOP**.

NOTES:

- *After step **5**, Retake (☞ pg. 12) can be performed.*
- *The tape may stop slightly before or after the designated end point, and noise bars may appear. Neither indicates a defect in the unit.*
- *Only video signal is recorded in the Insert Editing mode.*



RM-V704U or RM-V700U
(provided with GR-AX470 only)

Audio Dubbing

You can record a new soundtrack on a prerecorded tape (normal audio only).

** Perform steps **1**, **2** and **3** of the Insert Editing procedure (☞ pg. 36) before continuing.

- The sound comes from the built-in mike.

1
FIND EDIT-IN POINT
Press **REW** to go a little beyond the beginning of the scene onto which you want to dub new audio, press **PLAY** to view the recorded tape, then press **PAUSE** at exactly the point where dubbing should start.

2
ENGAGE AUDIO DUB STANDBY MODE
Press and hold **A. DUB**, and without releasing **A. DUB**, press and release **PAUSE**.

3
BEGIN AUDIO DUBBING
Press **PLAY**. When the counter reaches "0:00:00", Audio Dubbing stops automatically and the camcorder enters the Audio Dub-Standby mode.

4
END AUDIO DUBBING
Press **STOP**.

NOTES:

- *Do not press **FF** or **REW** during Audio Dub-Standby, or the edit points will not be accurate.*
- *If the mike is too close to the TV, or if the TV's volume is too high, whistling or howling may occur.*

NOTES (for Insert Editing and Audio Dubbing):

- *Insert Editing and audio Dubbing may not work correctly if the tape contains blank segments, or if the recording speed was changed during the original recording.*
- *To edit/dub onto a tape with the recording safety tab removed, cover the hole with adhesive tape.*
- *Do not press **STOP** during Insert Editing or Audio Dubbing, or the edit points will not be accurate.*
- *During Insert Editing and Audio Dubbing, when Insert–Pause or Audio Dub–Standby is engaged, the counter may go slightly past "0:00:00". Recording, however, stops at exactly 0:00:00.*

POWER

SYMPTOM	POSSIBLE CAUSE(S)
No power is supplied.	• The battery pack has not been attached correctly (☞ pg. 4). • The battery pack is not charged (☞ pg. 4). • The power supply has not been correctly connected (☞ pg. 5).
The power suddenly goes off and doesn't come back on by itself.	• The battery pack has completely discharged. • Remove the cassette and disconnect the power source, then after a few minutes, try turning the power back on. If it still doesn't come on, consult your nearest JVC dealer.

RECORDING

SYMPTOM	POSSIBLE CAUSE(S)
Recording cannot be performed.	• The recording tape's Erase Protection tab is missing. Cover the hole with adhesive tape. (Some tapes have sliding tabs. In this case, check the position of the tab.)
Recording does not start.	• The camcorder Power switch has not been set to "CAMERA" (☞ pg. 10).

PLAYBACK

SYMPTOM	POSSIBLE CAUSE(S)
The tape is running, but there's no playback picture.	• The TV has not been set to its VIDEO mode. • If A/V connection is used, the TV's VIDEO/TV switch has not been set to VIDEO. • The RF unit has not been set to the correct channel.
Noise bars appear in the playback picture.	• Manual Tracking has not been performed (☞ pg. 29).
Playback picture is blurred or interrupted.	• The video heads are dirty or worn out. Consult your nearest JVC dealer for head cleaning or replacement.
The counter indication is blurred during Still playback.	• This is normal.

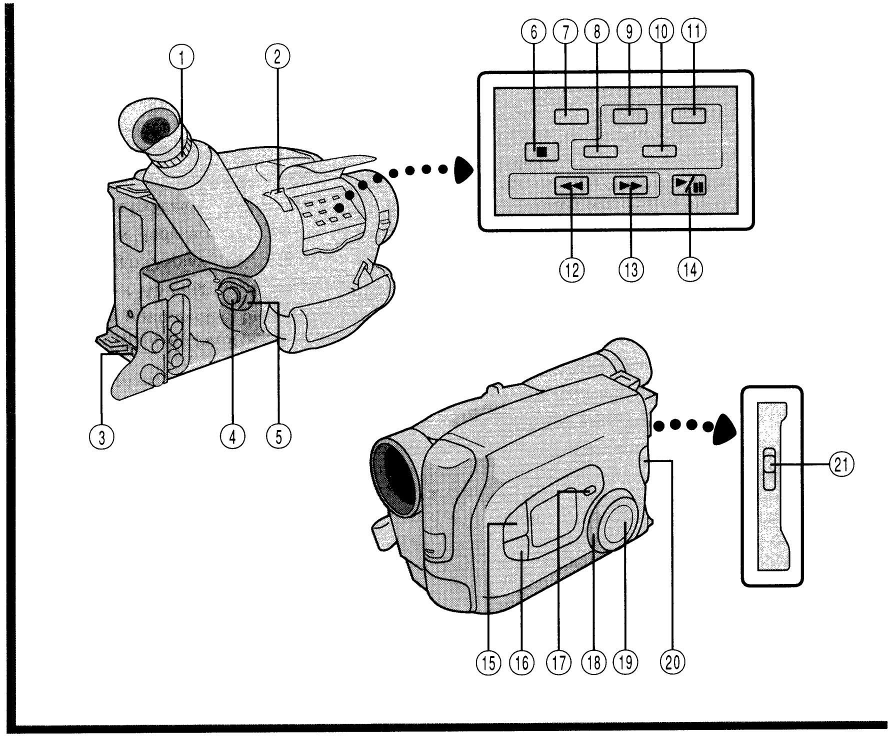
TAPE TRANSPORT

SYMPTOM	POSSIBLE CAUSE(S)
The tape stops during fast-forward or rewind.	• The Counter Memory Function has been activated (☞ pg. 29).
Rewinding or fast-forwarding cannot be performed.	• The tape is already fully wound on one reel or the other.

OTHER

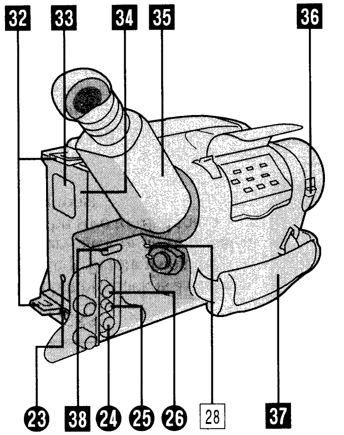
SYMPTOM	POSSIBLE CAUSE(S)
The tape won't eject.	• The battery pack is running low.
Some functions are not available.	• The PROGRAM AE select dial is set to "AUTO LOCK".
Vertical white lines appear when shooting a very bright object.	• This sometimes occurs when the contrast between the background and the object is great. It is not a defect of the camcorder.
Bright, crystal-shaped spots appear in the viewfinder.	• Sunlight is directly entering the lens.
An error number (i.e. E03) appears in the viewfinder.	• Turn the camcorder's power off, then disconnect the power source. After a few minutes, try turning the power on again. If the error number still appears in the viewfinder, consult your nearest JVC dealer.
The image is out of focus.	• The diopter needs to be adjusted (☞ pg. 6). • The scene being shot is adversely affecting the operation of Auto Focus (☞ pg. 16).
A character generator title and the date and time displays disappear from the viewfinder.	• If you remove the power source from the camcorder while the power is on, all settings and selections are erased. Make sure to turn the camcorder's power off before disconnecting the power source.
Even though the Lens Cover is open, the Lens Cover Warning indicator blinks.	• The Lens Cover Warning indicator may blink when the camcorder is used in dark areas, regardless of the position of the Lens Cover.

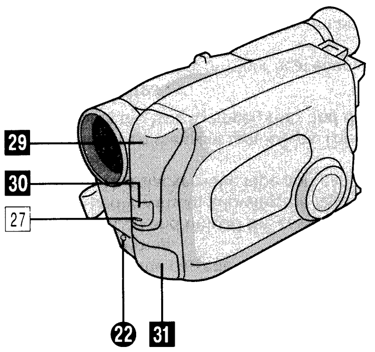
The camcorder is a microcomputer-controlled device. External noise and interference (from a TV, a radio, etc.) might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC Power Adapter/Battery Charger, etc.) and clock battery; and then re-connect it and proceed as usual from the beginning.

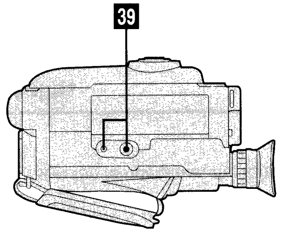


Controls

① Diopter Adjustment ☞ pg. 6
② Power Zoom Lever ☞ pg. 11
③ BATT. [Battery] RELEASE Switch ☞ pg. 4
④ Recording Start/Stop Button ☞ pg. 10
⑤ POWER Switch ☞ pg.10,28
⑥ STOP Button ☞ pg. 28
⑦ Tape Length [TAPE 30•45•60] Select Button ☞ pg. 8
  COUNTER R [Reset]/M [Memory] Button ☞ pg. 29
⑧ EDIT Button ☞ pg. 33
⑨ R.A.EDIT CANCEL Button ☞ pg. 32
⑩ R.A.EDIT Button ☞ pg. 32
⑪ R.A.EDIT IN/OUT Button ☞ pg. 32
⑫ REW Button ☞ pg. 28
  RETAKE R [Quick Review] Button ☞ pg. 12
⑬ FF Button ☞ pg. 28
  RETAKE F Button ☞ pg. 12
⑭ PLAY/PAUSE Button ☞ pg. 28
⑮ SELECT Button ☞ pg. 18
⑯ SET Button ☞ pg. 18
⑰ MENU Button ☞ pg. 22
⑱ PROGRAM AE Select Dial ☞ pg. 14
⑲ Multi-Function Control
  - Exposure +/– ☞ pg. 15
  - Focus FAR/NEAR ☞ pg. 16
  - Menu Setting Change ☞ pg. 22
  - Tracking +/– ☞ pg. 29
⑳ PUSH Button ☞ pg. 8
㉑ EJECT Switch ☞ pg. 8







Connectors

㉒ J terminal (JLIP (Joint Level Interface Protocol) Connector.)
(Located beneath the jack cover)
- Connect the Editing Cable when performing Random Assemble Editing (☞ pg. 32).
- It is used to connect the camcorder to a device such as a personal computer.
  For further detail consult your nearest JVC dealer. Information (in English) is also available at our home page: http://www.jvc-victor.co.jp/

㉓ DC IN Jack ☞ pg. 5

The jacks ㉔ to ㉖ are located beneath the jack cover.

㉔ VIDEO OUT Jack ☞ pg. 27
㉕ RF DC OUT Jack ☞ pg. 27
㉖ AUDIO OUT Jack ☞ pg. 27

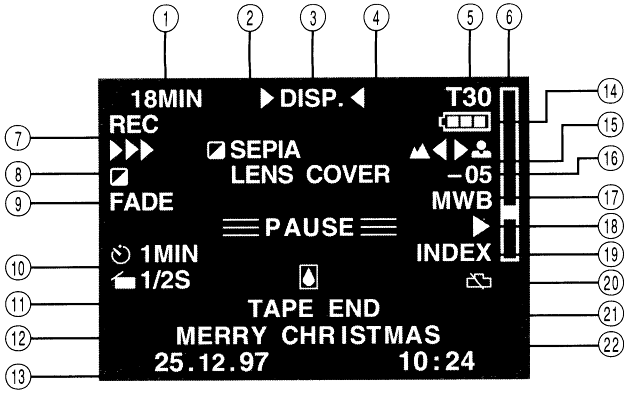
Indicators

27 Tally Lamp ☞ pg. 10
28 Power On Indicator ☞ pg. 10

Other Parts

29 Video Light (GR-AX470 only) ☞ pg. 13
30
- Camera sensor
  Be careful not to cover this area; built-in here is the sensor necessary for shooting.
- Remote sensor (GR-AX470 only) ☞ pg. 35

31 Microphone ☞ pg. 37
32 Shoulder Strap Eyelets ☞ pg. 9
33 Clock Battery Compartment ☞ pg. 6
34 Battery Pack Mount ☞ pg. 4
35 Electronic Viewfinder ☞ pg. 6
36 LENS COVER Switch ☞ pg. 10
37 Grip Strap ☞ pg. 9
38 VIDEO LIGHT ON/AUTO/OFF Switch (GR-AX470 only) ☞ pg. 13
39 Tripod Mounting Socket ☞ pg. 9



Viewfinder Indications

① Cassette Warning/Remaining Tape Time ☞ pg. 10
When no cassette is inserted or when Erase Protection tab is not in the position that allows recording, the Cassette (▭) Warning blinks. Otherwise, the Remaining Tape Time is displayed.

②, ⑧ PROGRAM AE Indicator ☞ pg. 14
Displayed at ② for approx. 1 second when the PROGRAM AE select dial is switched from one position to another. Then only the indicator remains at ⑧.

③ Program Manager Function Indication ☞ pg. 18
Appears when the PROGRAM AE select dial is set to any position other than AUTO LOCK.

④ Lens Cover Warning ☞ pg. 10

⑤ Tape Length Display ☞ pg. 8

⑥ Zoom Level Indicator ☞ pg. 11

⑦ Recording Indicator ☞ pg. 10

⑨ Fade–Standby Indicator ☞ pg. 18

⑩ Interval Time/Recording Time Indicator ☞ pg. 24

⑪ Record–Standby Mode Indicator ☞ pg. 10

⑫ Instant Title Display ☞ pg. 19

⑬ Date/Time Character Display ☞ pg. 20

⑭ Battery Pack Remaining Power Indicator
Changes as follows according to the battery pack's remaining power level: "▮▮▮→▮▮→▮→▯".
When the power is almost gone, the indicator blinks, then the unit shuts off. Replace the battery pack with a fully charged one.
(**Note:** The symbol containing 3 darkened squares — ▮▮▮ — does not necessarily mean that the battery pack is fully charged.)

⑮ Focus Indicator ☞ pg. 16

⑯ Exposure Level Indicator ☞ pg. 15

⑰ White Balance Mode Indicator ☞ pg. 21

⑱ Menu Setting Change Indicator ☞ pg. 22

⑲ Index Code Marking ☞ pg. 35

⑳ Clock Warning
Displayed for about 5 seconds if the clock (lithium) battery is not in place or is exhausted when power is turned on. Also displayed for about 5 seconds when clock battery becomes exhausted while using the camcorder.
For inserting or replacing the clock battery ☞ pg. 6

㉑ Condensation Warning
When this indication appears, all functions are disabled. Turn the unit off (without removing the power source) for a few hours, and when you turn it on again the indicator should disappear.

㉒ Tape End Display ☞ pg. 10
Appears when the end of the tape is reached during playback, recording or fast-forward.

DANGER:

- The video light becomes extremely hot. Do not touch it either while in operation or soon after turning it off, otherwise serious injury may result.
- Do not place the camcorder into the carrying case immediately after using the video light, since it remains extremely hot.
- When operating, keep a distance of about 30 cm between the video light and people or object.
- Do not use near flammable or explosive materials.
- Consult your nearest JVC dealer for replacing the video light unit.

General Battery Precautions

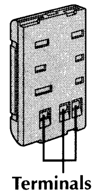
- When the C-P6U or C-P7U (cassette adapter) is not functioning even when correctly operated, the batteries are exhausted. Replace them with fresh ones.
- Use only the following batteries:
  C-P6U or C-P7U .... R6 (AA) size

Please make note of the following rules for battery use. When misused, batteries can leak or explode.

1. Refer to the instructions when replacing the battery.
2. **Do not** expose batteries to excessive heat as they can leak or explode.
3. **Do not** dispose of batteries in a fire.
4. Remove batteries from the unit if it is to be stored for an extended period to avoid battery leakage which can cause malfunctions.

Battery Packs

The supplied battery pack is a nickel-cadmium battery. Before using the supplied battery pack or an optional battery pack, be sure to read the following cautions:



1. To avoid hazard . . .
.... **do not** burn.
.... **do not** short-circuit the terminals.
.... **do not** modify or disassemble.
.... use only specified chargers.

2. To prevent damage and prolong service life . . .
.... **do not** subject to unnecessary shock.
.... avoid repeated charging without fully discharging.
.... charge in an environment where temperatures are within the tolerances shown in the chart below. This is a chemical reaction type battery—cooler temperatures impede chemical reaction, while warmer temperatures can prevent complete charging.
.... store in a cool, dry place. Extended exposure to high temperatures will increase natural discharge and shorten service life.
.... avoid prolonged uncharged storage.
.... remove from charger or powered unit when not in use, as some machines use current even when switched off.

3. To prevent damage to the camcorder . . .
.... replace the battery pack when it begins to deliver less recording time per charge.

NOTE:

It is normal for the battery pack to be warm after charging, or after use.

Temperature Ranges

Charging	10°C to 35°C
Operation	0°C to 40°C
Storage	–10°C to 30°C

NOTES:

- *Recharging time is based on room temperature of 20°C.*
- *The lower the temperature, the longer recharging takes.*

Cassettes

To properly use and store your cassettes, be sure to read the following cautions:

1. During use . . .
.... make sure the cassette bears the VHS-C mark.
.... be aware that recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
.... make sure the cassette is positioned properly when inserting.
.... do not load and unload the cassette repeatedly without allowing the tape to run at all. This slackens the tape and can result in damage.
.... do not open the front tape cover. This exposes the tape to fingerprints and dust.

2. Store cassettes . . .
.... away from heaters or other heat sources.
.... out of direct sunlight.
.... where they won't be subject to unnecessary shock or vibration.
.... where they won't be exposed to strong magnetic fields (such as those generated by motors, transformers or magnets).
.... vertically, in their original cases.

Main Unit

1. **For safety, DO NOT . . .**
   .... open the camcorder's chassis.
   .... disassemble or modify the unit.
   .... short-circuit the terminals of the battery pack. Keep it away from metallic objects when not in use.
   .... allow inflammables, water or metallic objects to enter the unit.
   .... remove the battery pack or disconnect the power supply while the power is on.
   .... leave the battery pack attached when the camcorder is not in use.
2. **Avoid using the unit . . .**
   .... in places subject to excessive humidity or dust.
   .... in places subject to soot or steam such as near a cooking stove.
   .... in places subject to excessive shock or vibration.
   .... near a television set.
   .... near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
   .... in places subject to extremely high (over 40°C) or extremely low (under 0°C) temperatures.
3. **DO NOT leave the unit . . .**
   .... in places of over 50°C.
   .... in places where humidity is extremely low (below 35%) or extremely high (above 80%).
   .... in direct sunlight.
   .... in a closed car in summer.
   .... near a heater.
4. **To protect the unit, DO NOT . . .**
   .... allow it to become wet.
   .... drop the unit or strike it against hard objects.
   .... subject it to shock or excessive vibration during transportation.
   .... keep the lens directed at extremely bright objects for long periods.
   .... direct the eyepiece of the viewfinder at the sun.
   .... carry it by holding the viewfinder.
   .... swing it excessively when using the shoulder strap.
5. **This camcorder features a built-in head cleaner which automatically cleans the heads and head drum when a cassette is loaded or unloaded. If, however, the heads become dirty and cause blurriness or interruption in the playback picture, consult your nearest JVC dealer.**

About moisture condensation . . .

- You have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass' outer surface. This same phenomenon occurs on the head drum of a camcorder when it is moved from a cool place to a warm place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.
- Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the camcorder itself.

Serious malfunctioning

If malfunctioning occurs, stop using the unit immediately and consult your local JVC dealer.

For Your Maintenance

1. **After Use**
   ① Set the power switch to POWER OFF to turn off the camcorder.
   ② Slide EJECT to open the cassette holder, then remove the cassette.
   ③ Close and lock the cassette holder by pressing PUSH.
   ④ Press BATT. RELEASE to remove the battery pack.
   ⑤ Slide the LENS COVER open/close switch to close the lens cover.
2. **Cleaning The Camcorder**
   ① **CLEAN EXTERIOR**
   Wipe gently with a soft cloth.
   ② **CLEAN LENS**
   Blow it with a blower brush, then wipe gently with lens cleaning paper.
   ③ **REMOVE EYEPIECE**
   Turn the eyepiece counterclockwise and pull it out.
   ④ **CLEAN VIEWFINDER**
   Remove dust using a blower brush.
   ⑤ **RE-ATTACH EYEPIECE**
   Align the marks, re-attach the eyepiece and turn it clockwise.

NOTES:

- *Avoid using strong cleaning agents such as benzine or alcohol.*
- *Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.*
- *Mold may form if the lens is left dirty.*

SECTION 1
DISASSEMBLY

1.1 SERVICE CAUTIONS

1.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. In general, chip parts such as resistor, shorting jumpers (0-ohm resistor), ceramic capacitors, diodes, etc. can not be reused after they were once removed.
4. When installing parts, be careful not to do with other parts as well as not to damage others.
5. When removing ICs, be careful not to damage circuit patterns.

1.1.2 How to read the disassembly and assembly

(For Cabinet Parts)

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER ASSEMBLY	C1	(S1), 2(L1) PUSH BUTTON *CONNECTOR Ⓐ	<NOTE 1> <NOTE 2>
②	TOP COVER	C2	(S2), 2(L2)	–
③	FRONT COVER ASSEMBLY	C3	4(S2)	–
④	MICROPHONE	C3	(S2) *CONNECTOR Ⓑ	<NOTE1>
↑ ①	↑ ②	↑ ③	↑ ④	↑ ⑤

① : Order of steps in Procedure
When reassembling, preform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

② : Part to be removed or installed.

③ : Fig. No. showing Procedure or Part Location.

C = Cabinet
CA = Camera
D = Deck

④ : Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.

P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.
6(S2) = 6 Screws (S2)

⑤ : Adjustment information for installation.

1.1.3 Connection of the wires

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

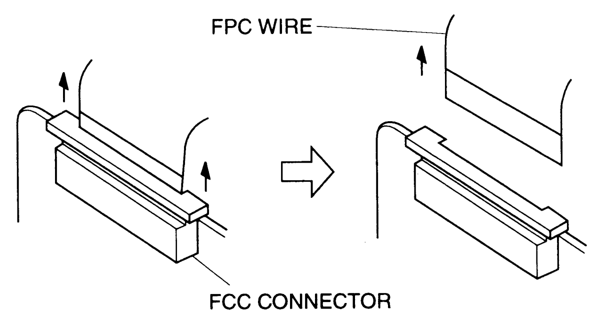


Fig. 1-1-1

1.1.4 Main screws to deal with disassembly/assembly

Table 1-1-1 lists screws by their symbols correspond to those shown in figures of this section "Disassembly".

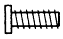
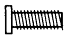
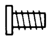
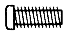
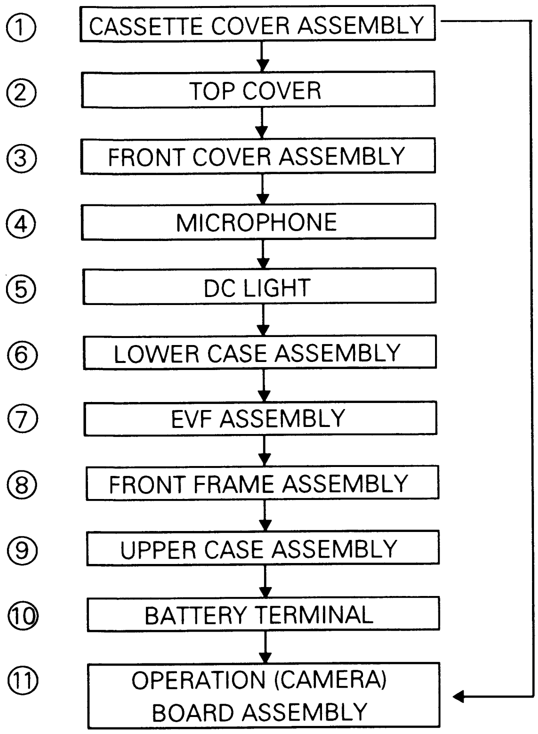
SYMBOL OF SCREW	SHAPE	PART NUMBER
S1		QYSLSP2030D
S2		QYSLSF2055D
S3		QYSLSG2080D
S4		QYSLSF1750D
S5		SPSH1725M
S6		QYTPSP2006Z
S7		QYSPSPU1740Z
S8		QYSPSPU1720M
S9		YQ44457-3

Table 1-1-1

1.2 DISASSEMBLY/ASSEMBLY OF CABINET PARTS

1.2.1 Disassembly flow chart

This flowchart indicates the disassembly step for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.

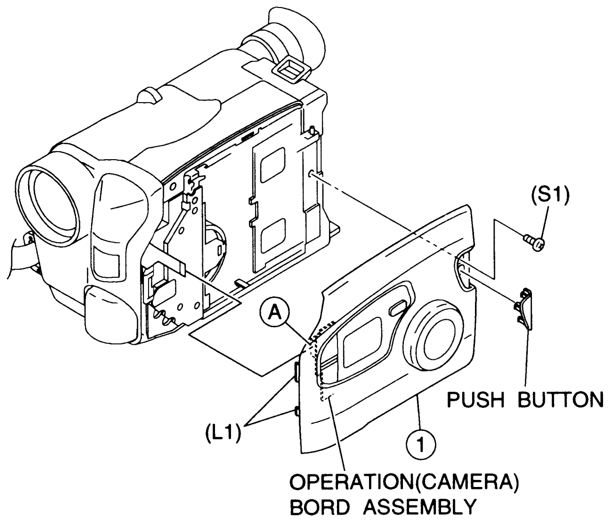


① CASSETTE COVER ASSEMBLY
② TOP COVER
③ FRONT COVER ASSEMBLY
④ MICROPHONE
⑤ DC LIGHT
⑥ LOWER CASE ASSEMBLY
⑦ EVF ASSEMBLY
⑧ FRONT FRAME ASSEMBLY
⑨ UPPER CASE ASSEMBLY
⑩ BATTERY TERMINAL
⑪ OPERATION (CAMERA) BOARD ASSEMBLY

1.2.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER ASSEMBLY	C1	(S1), 2(L1), PUSH BUTTON *CONNECTOR Ⓐ	<NOTE 1> <NOTE 2>
②	TOP COVER	C2	(S2), 2(L2)	–
③	FRONT COVER ASSEMBLY	C3	4(S2)	–
④	MICROPHONE	C3	(S2) *CONNECTOR Ⓑ	<NOTE 1>
⑤	DC LIGHT	C3	2(L2)	ONLY FOR GR-AX470EG
⑥	LOWER CASE ASSEMBLY	C4	5(S2), (S3), (S4)	<NOTE 3>
⑦	EVF ASSEMBLY	C4	2(S3) *CONNECTOR Ⓒ	<NOTE 1>
⑧	FRONT FRAME ASSEMBLY	C5	2(S5)	–
⑨	UPPER CASE ASSEMBLY	C5	5(S2)	–
⑩	BATTERY TERMINAL	C5	*CONNECTOR Ⓓ	<NOTE 1>
⑪	OPERATION (CAMERA) BOARD ASSEMBLY	C6	4(S2)	–

List of Abbreviations:
(S1) = 1 Screw (S1)
6(S2) = 6 Screws (S2)
2(L5) = 2 Locking Tabs (L5)



(S1)
Ⓐ
PUSH BUTTON
(L1)
①
OPERATION(CAMERA) BORD ASSEMBLY

Fig. C1

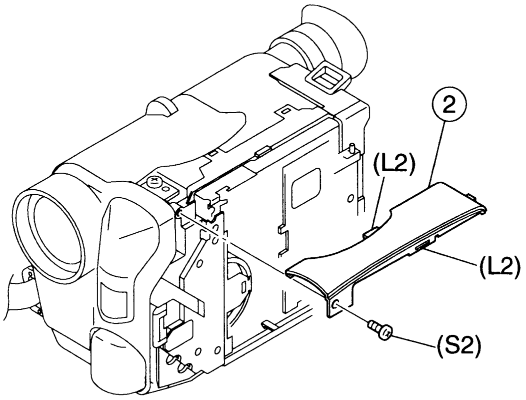


Fig. C2

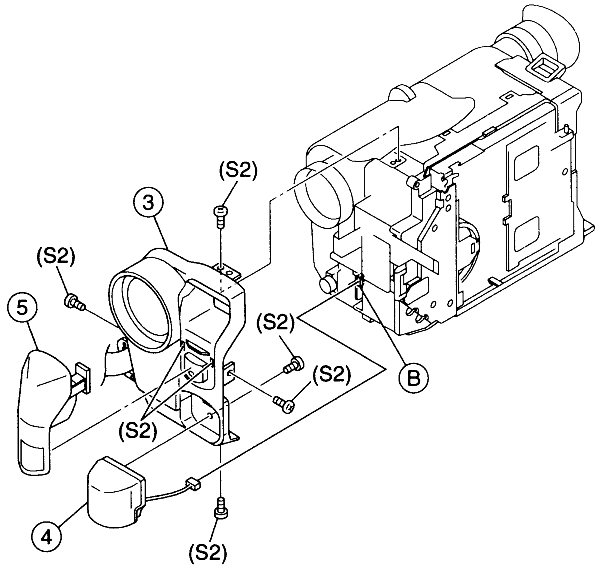

(S2)
3
(S2)
5
(S2)
(S2)
(S2)
B
(S2)
4
(S2)

Fig. C3

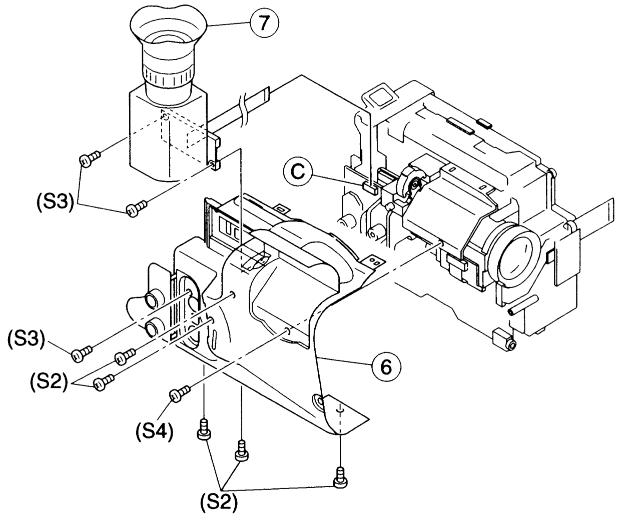

7
C
(S3)
(S3)
(S2)
6
(S4)
(S2)

Fig. C4

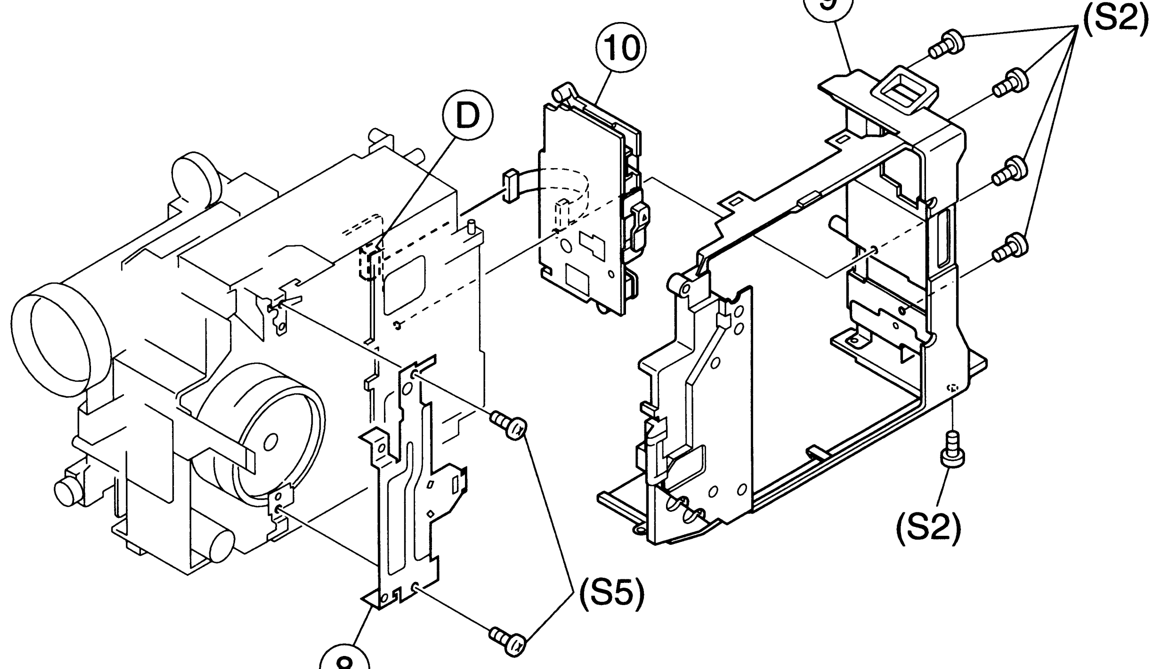

9
(S2)
10
D
(S2)
(S5)
8

Fig. C5

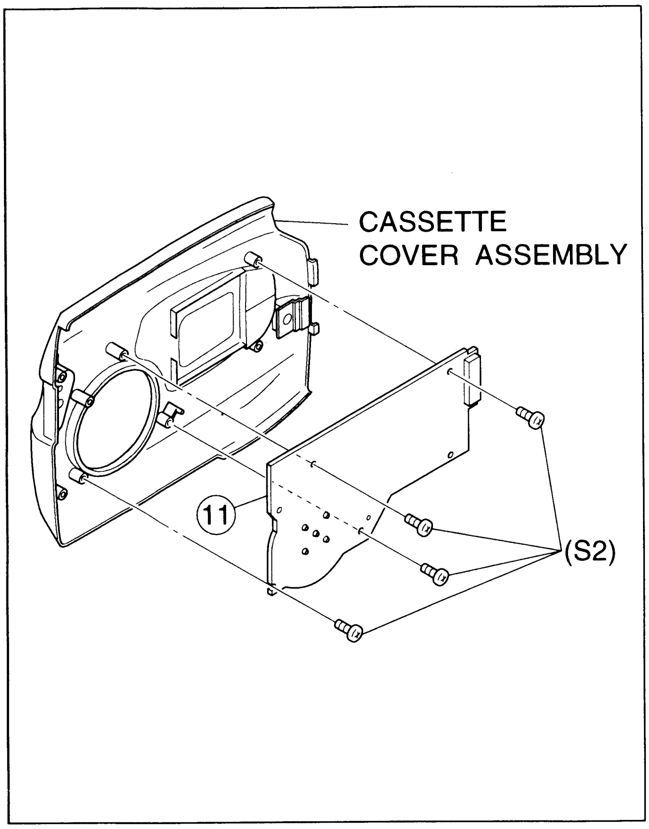


Fig. C6

Reference Notes:
<NOTE 1>
Destination of connectors
Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*

⟷ : Board to Board connector
⇔ : Flat wire
↔ : Wire

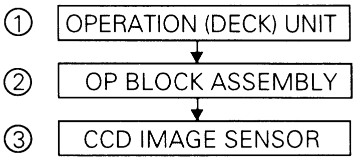
Con-nector	No. of Pins	Connector
Ⓐ	15	OPERATION (CAMERA) ⇔ MAIN2 CN203
Ⓑ	4	MIC ↔ MAIN1 CN108
Ⓒ	11	EVF ⇔ MAIN2 CN206
Ⓓ	6	BATTERY TERMINAL ↔ MAIN1 CN106

<NOTE 2>
First disconnect connector Ⓐ , then remove the cassette cover assembly ①.
<NOTE 3>
First remove the grip strap, then remove the lower case assembly ⑥.

1.3 DISASSEMBLY/ASSEMBLY OF CAMERA PARTS

1.3.1 Disassembly flow chart

This flowchart indicates the disassembly step for the CAMERA parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.



*Refer to section 1.6

1.3.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	OPERATION (DECK) UNIT	CA1	2(S2) *CONNECTOR Ⓐ	<NOTE 1>
②	OP BLOCK ASSEMBLY	CA1	(S2), (S3), 2(S6) *CONNECTORS Ⓑ, Ⓒ	<NOTE 1> <NOTE 2>

List of Abbreviations:
2(S2) = 2 Screws (S2)
(L1) = 1 Locking (L1)

Reference Notes:
<NOTE 1>
Destination of connectors
Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*

⟷ : Board to Board connector
⇔ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector
Ⓐ	13	MAIN1 CN105 ⇔ OPERATION (DECK)
Ⓑ	22	OP BLOCK ⇔ MAIN2 CN201
Ⓒ	14	OP BLOCK ⟷ CCD CN301

<NOTE 2>
Move the CCD board in the direction of the rear side. At that time, pay careful attention to pins (connector Ⓒ) of the CCD image sensor so as not to damage them.

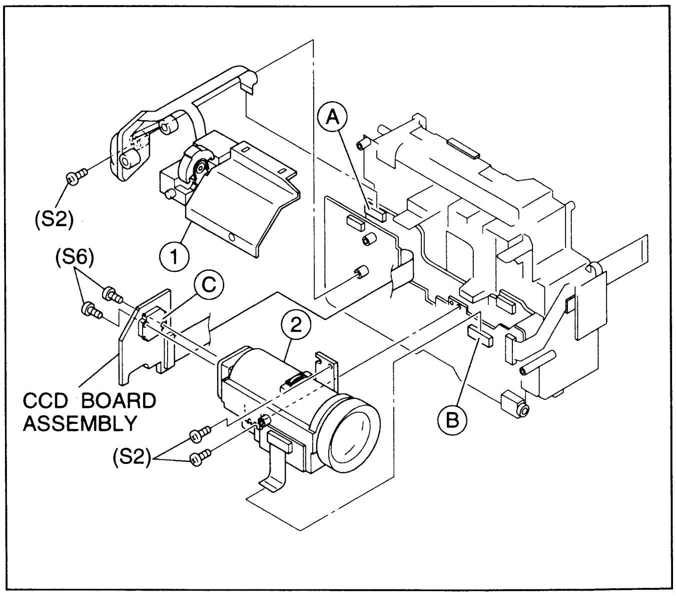
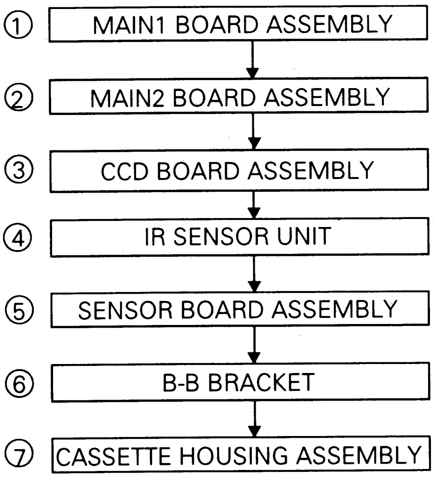


Fig. CA1

1.4 DISASSEMBLY/ASSEMBLY OF DECK PARTS

1.4.1 Disassembly flow chart

This flowchart indicates the disassembly step for the DECK parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.


① MAIN1 BOARD ASSEMBLY
② MAIN2 BOARD ASSEMBLY
③ CCD BOARD ASSEMBLY
④ IR SENSOR UNIT
⑤ SENSOR BOARD ASSEMBLY
⑥ B-B BRACKET
⑦ CASSETTE HOUSING ASSEMBLY

1.4.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	MAIN1 BOARD ASSEMBLY	D1	2(S4) *CONNECTOR Ⓐ,Ⓑ,Ⓒ	<NOTE 1>
②	MAIN2 BOARD ASSEMBLY	D1	*CONNECTOR Ⓓ	<NOTE 1>
③	CCD BOARD ASSEMBLY	D1	–	–
④	IR SENSOR UNIT	D1	2(L1)	–
⑤	SENSOR BOARD ASSEMBLY	D1	3(S4), 4(S7), (S8) FRAME ASSEMBLY, *CONNECTORS Ⓔ, Ⓕ,Ⓖ,Ⓗ,Ⓙ	<NOTE 1>
⑥	B-B BRACKET	D1	(S7)	–
⑦	CASSETTE HOUSING ASSEMBLY	D2	4(S9)	–

List of Abbreviations:
3(S4) = 3 Screws (S4)
(L3) = 1 Locking Tab (L3)

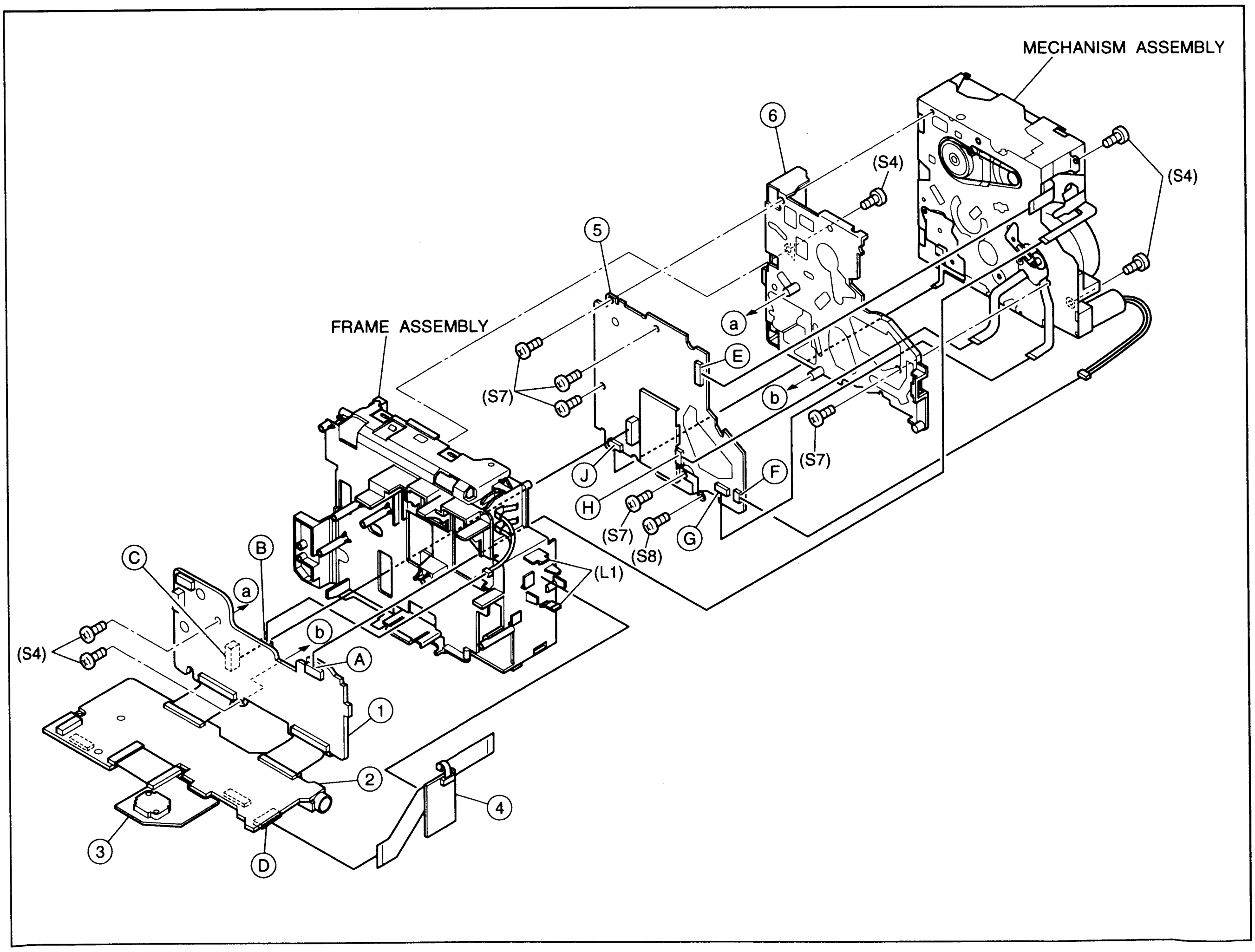

MECHANISM ASSEMBLY
⑥
(S4)
(S4)
⑤
FRAME ASSEMBLY
(S7)
ⓐ
Ⓔ
ⓑ
Ⓙ
Ⓗ
Ⓕ
(S7)
(S7)
(S8)
Ⓖ
Ⓑ
Ⓒ
ⓐ
ⓑ
(L1)
(S4)
Ⓐ
①
②
③
④
Ⓓ

Fig. D1

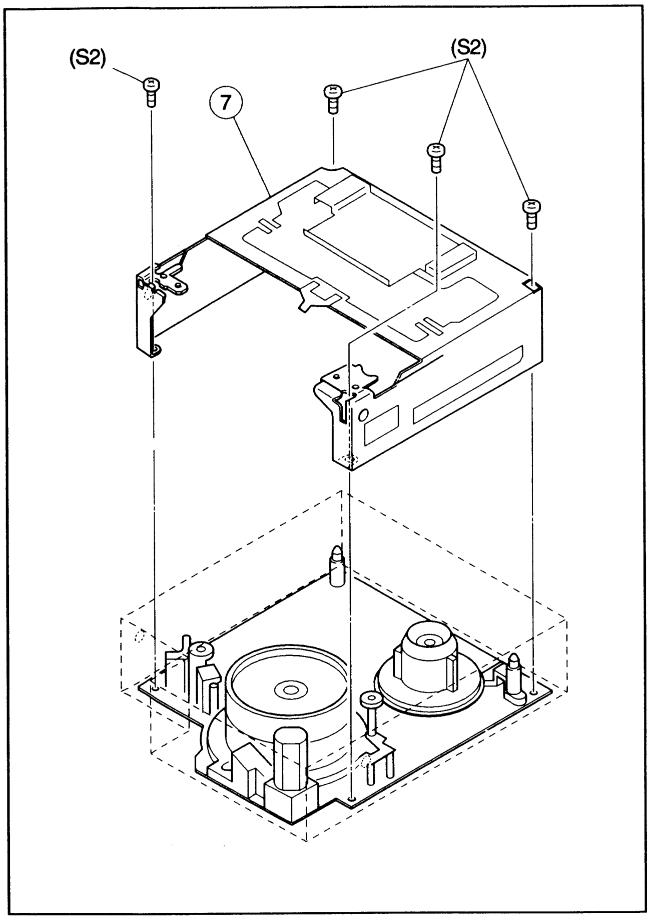


Fig. D2

Reference Notes:
<NOTE 1>
Destination of connectors

Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*

⬌ : Board to Board connector
⇔ : Flat wire
↔ : Wire

Connector	No. of Pins	Connector
Ⓐ	11	MAIN1 CN107 ⇔ A/C HEAD
Ⓑ	2	MAIN1 CN110 ↔ DC LIGHT (ONLY FOR GR-AX470EG)
Ⓒ	50	MAIN1 CN101 ⬌ SENSOR CN6
Ⓓ	7	MAIN2 CN203 ⇔ IR SENSOR UNIT
Ⓔ	18	SENSOR CN3 ⇔ CAPSTAN MOTOR
Ⓕ	2	SENSOR CN4 ↔ LOADING MOTOR
Ⓖ	10	SENSOR CN1 ⇔ DRUM MOTOR
Ⓗ	11	SENSOR CN5 ⇔ VIDEO HEAD
Ⓙ	6	SENSOR CN2 ⇔ ROTARY ENCODER UNIT

1.5 TO TAKE OUT CASSETTE TAPE

In the event that the set enters the emergency mode as it is loaded with a cassette tape and the cassette tape cannot be ejected with the EJECT button, manually, take it out of the set according to the following procedure.

Note: *If the mechanism comes into the unloading mode as the cassette tape is not held by hand, it results in tape damage.*

1. Disconnect the set from the power source.
2. Remove the push button and one screw (S1), open the cassette cover assembly and disconnect connector Ⓐ . (See Fig. C1 page 1-2)
3. Connect a jumper wire to each pole of the loading motor as shown by the magnified view ⓑ (Fig. 1-5-1)
4. While holding down the cassette housing by hand, connect the jumper wires to a battery to run the mechanism to the EJECT position four unloading. If this unloading operation is performed as the cassette housing is not held down by hand, the front lid of the cassette may damage the tape when it is ejected.
5. For taking in the slack of the tape, run the mechanism to the EJECT position as the front lid of the cassette is left open, and turn the take-up reel in the forward direction to wind up the tape. After confirming that the tape has completely been wound up and the supply reel is idling, take the cassette tape out of the cassette housing.

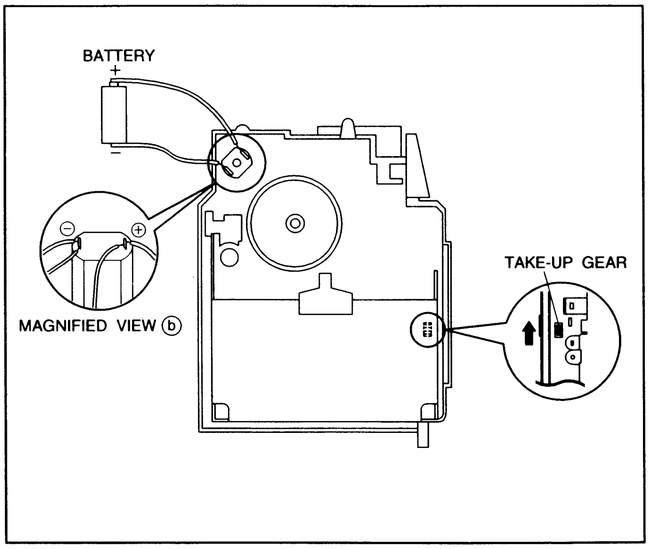


Fig. 1-5-1

1.6 REPLACEMENT OF CCD IMAGE SENSOR

Notes:

- *Pay the most careful attention to the transparent glass and optical LPF of the CCD image sensor so a not the soil and damage them. If something is soiled with finger-prints, etc., gently clean it with silicon-processed paper/cloth or chamois.*
- *When the CCD image sensor is shipped from the factory, there are protection seals applied onto the transparent glass. Leave the protector as it is, and take it off just before assembling the CCD image sensor to the OP block.*

1.6.1 Removal of CCD image sensor

1. Remove two screws Ⓐ securing the CCD base, and disassemble the CCD spacer, the optical LPF, spacer rubber.

1.6.2 Installation of new CCD image sensor

1. Remove the protection seal from a new CCD image sensor. Next, put the spacer rubber, optical LPF, CCD spacer on the CCD image sensor as they are piled up in this order. At that time, make sure of orientation of each item refering to the following table (see Fig. 1-6-1).

Part Name	Orientation
CCD image sensor	Mark is on the right viewed as indicated by the arrow ⓐ .
Spacer rubber	IC side is horizontal.
Optical LPF	Marks are on the left and bottom viewed as indicated by the arrow ⓐ

2. Fix the CCD base to OP block with the two screws Ⓐ . At that time, be careful of the orientation.
3. After completion of all P.C. boards to the camera section, observe the monitor to confirm no vignetting caused by the bodytube, rings, lens hood, etc. If no vignetting is observed, it can be said that image's parallel, horizontality and centering are correct.

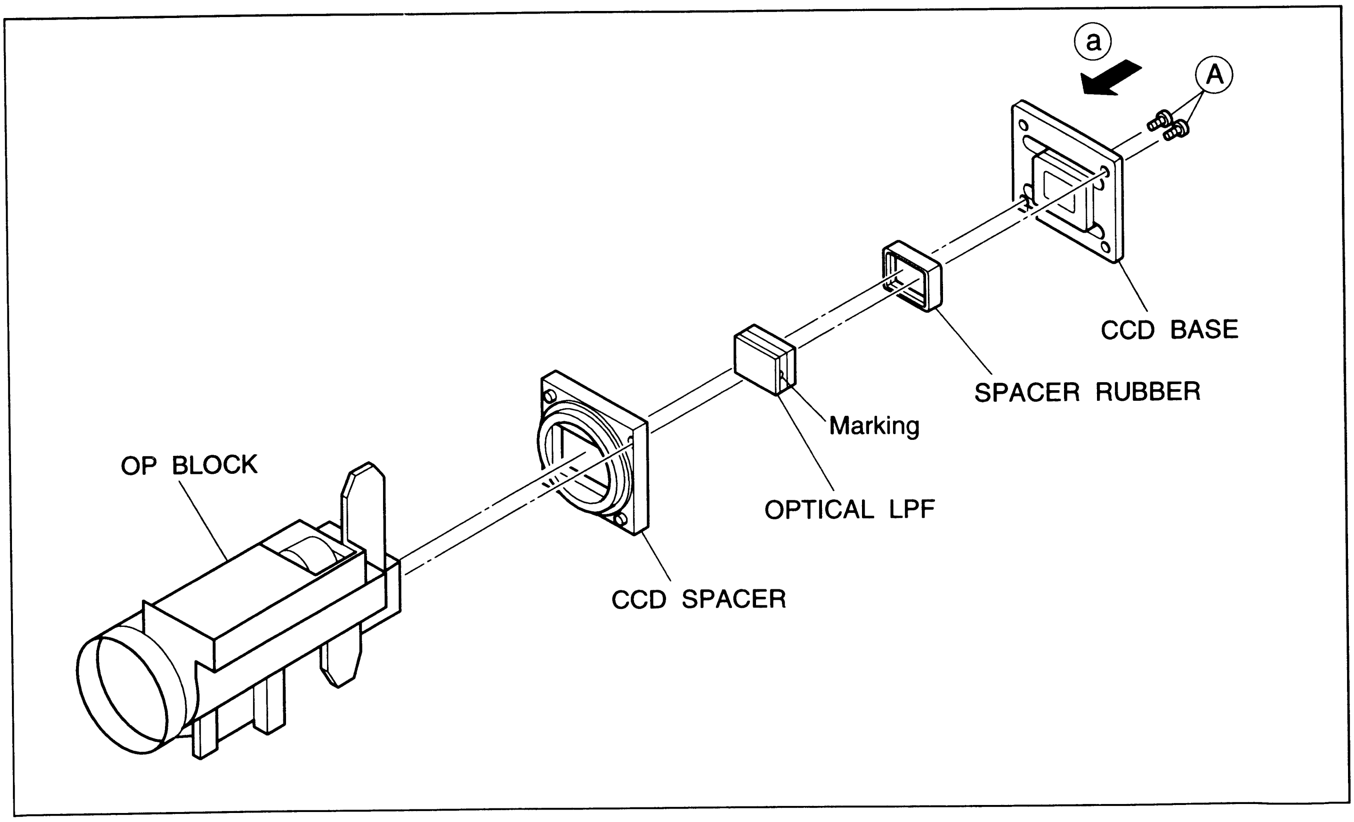


Fig. 1-6-1 CCD image sensor

1.7 EXTENSION CABLE CONNECTION

Connector	Pins	Connection	Part Number	Description
①	11	MAIN1 CN107 ↔ A/C HEAD	YTU94077-11 YTU94074-11	–
②	11	MAIN2 CN206 ↔ E. VF	YTU94077-11 YTU94074-11	–
③	13	MAIN1 CN105 ↔ OPERATION UNIT	YTU94077-13 YTU94074-13	–
④	6	MAIN1 CN106 ↔ BATTERY TERMINAL	YUJ40095A-6	–
⑤	22	MAIN2 CN201 ↔ OP BLOCK	YTU94077-22 YTU94074-22	–
⑥	15	SENSOR UNIT ↔ OPERATION (CAMERA)	YTU94077-15 YTU94074-15	–
⑦	4	MAIN1 CN108 ↔ MIC	YUJ40095A-4	–
⑧	50	MAIN1 CN101 ↔ SENSOR CN6	PEMCJ1202-050	–

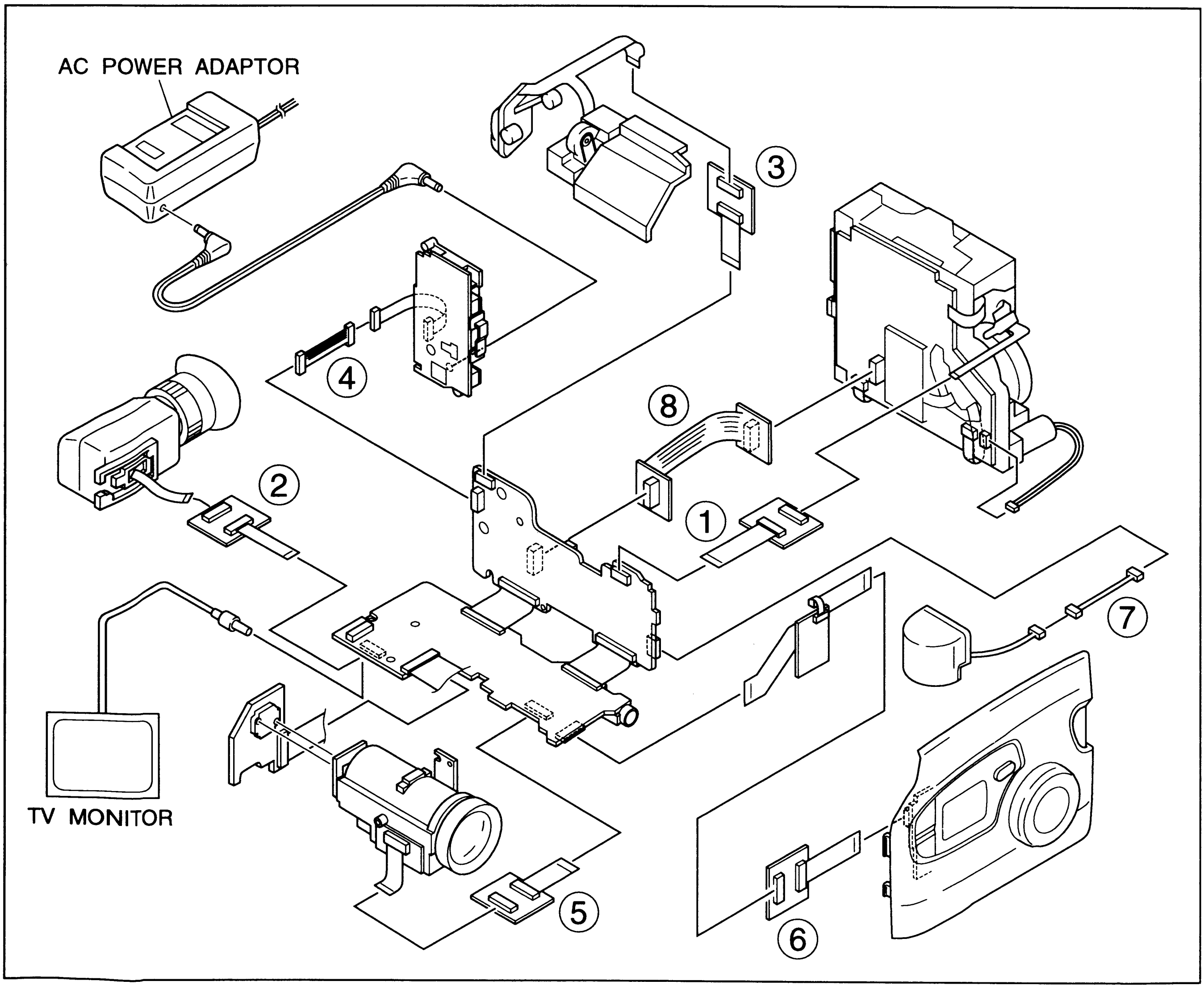


Fig. 1-7-1 EXTENSION CABLE CONNECTION

SECTION 2
MECHANISM ADJUSTMENT

2.1 SERVICE CAUTIONS

2.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. When installing parts, be careful not to do with other parts as well as not to damage others. (Pay the most careful attention to the upper drum assy and tape transport mechanism.)

2.1.2 How to read the disassembly and assembly (For Mechanism Parts)

①: Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

②: Part to be removed or installed.

③: Location of part.
T = Top
B = Bottom

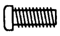
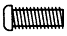
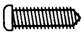
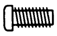
④: Fig. No. showing Procedure or Part Location.
M = Mechanism

⑤: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.

⑥: Adjustment information for installation.
(+) = Refer to Exploded Views for Lubrication information.

2.1.3 Main screws and washers to deal with disassembly/assembly

Table 2-1-1 lists screws and washers by their symbols which correspond to those shown in figures of this section "Disassemby and Assembly".

SYMBOL OF SCREW	SHAPE	PART NUMBER
S1		YQ44457
S2		YQ44457-3
S3		YQ44457-2
S4		SPSN1750Z
S5		YQ44304
S6		YQ44460
S7		SPSH1730C
S8		SPSH1740Z
S9		YQ44457-5
S10		SPSH1730M

SYMBOL OF WASHER	SHAPE	PART NUMBER
W1		PQM30017-27
W2		Q03093-835
W3		PQM30017-25

Table 2-1-1

(For Mechanism Parts)

STEP/LOC. No.	PART		Fig. No.	REMOVAL	INSTALLATION
				*UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	ADJUSTMENT CONDITION NOTE
①	ROLLER BASE ASSEMBLY	T	M1	(S1)	–
②	TENSION ARM ASSEMBLY	T	M1	(P1), (W1)	–
③	REEL DISK (SUP)	T	M1	(W1), (W2)	–
④	SLANT ARM ASSEMBLY	T	M1	(W1)	–
⑤	CANCEL LEVER ASSEMBLY	T	M2	(W1)	–
⑥	EJECT LEVER ASSEMBLY	T	M2	(W1)	–
⑦	CASSETTE GUIDE (L) ASSEMBLY	T	M2	(S1)	–

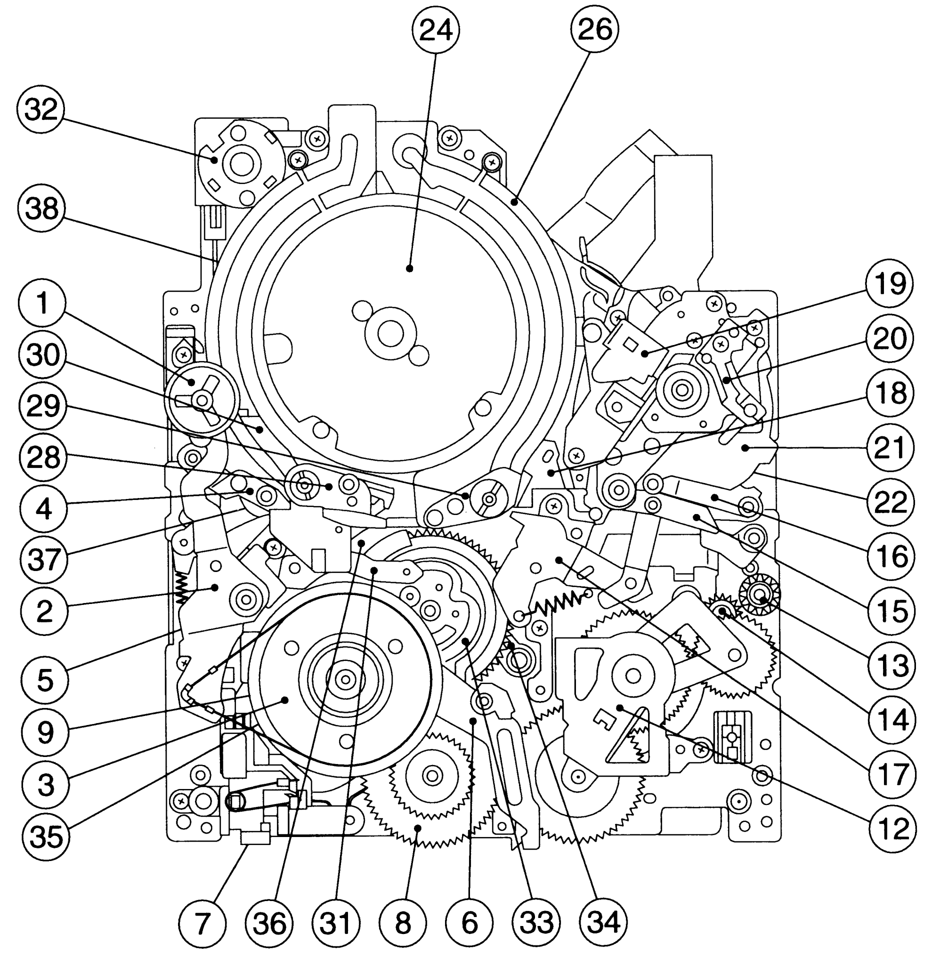
↑ ① ↑ ② ↑ ③ ↑ ④ ↑ ⑤ ↑ ⑥

2.2 DISASSEMBLY/ASSEMBLY OF MECHANISM PARTS

This procedure starts with the condition that the cabinet parts and deck parts. Also, all the following procedures for adjustment and parts replacement should be performed in STOP mode. When reassembling, perform the step(s) in the reverse order.

STEP/LOC. No.	PART		Fig. No.	REMOVAL	INSTALLATION
				*UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	ADJUSTMENT CONDITION NOTE
①	ROLLER BASE ASSEMBLY	T	M1	(S1)	–
②	TENSION ARM ASSEMBLY	T	M1	(P1), (W1)	–
③	REEL DISK (SUP)	T	M1	(W1), (W2)	–
④	SLANT ARM ASSEMBLY	T	M1	(W1)	–
⑤	CANCEL LEVER ASSEMBLY	T	M2	(W1)	–
⑥	EJECT LEVER ASSEMBLY	T	M2	(W1)	–
⑦	CASSETTE GUIDE (L) ASSEMBLY	T	M2	(S1)	–
⑧	SUPPLY CLUTCH ASSEMBLY	T	M2	(W1)	–
⑨	WHEEL GEAR	T	M2	(W1)	See, Adjustment procedure for Section 2.4
⑩	ROTARY ENCODER	B	M3	2(S10)	–
⑪	TIMING BELT	B	M3	–	–
⑫	CENTER PULLEY UNIT	T/B	M3	2(S3)	–
⑬	TU GEAR	T	M3	(W1)	–
⑭	BRAKE SUB GEAR	T	M3	(W1)	–
⑮	P.R ARM ASSEMBLY	T	M3	(W3)	–
⑯	TU GUIDE ARM ASSEMBLY	T	M3	(W1)	–
⑰	LINK ARM ASSEMBLY	T	M4	(W3)	–
⑱	LED GUIDE	T	M4	(S1)	–
⑲	A/C HEAD UNIT	T	M4	2(S4)	–
⑳	SLANT POLE BASE ASSEMBLY	T	M5	(S5)	–
㉑	CAP MOTOR ASSEMBLY	T	M5	3(S5)	–
(22A)	MOTOR BASE	T	M5	2(S1), (S6)	–
(22B)	CLEANER ASSEMBLY	T/B	M5	2(S2), (L1)	
㉓	BRUSH	B	M6	(S2)	–
㉔	DRUM FINAL	T/B	M6	2(S1), 2(S8), *CATCHER	–
㉖	GUIDE RAIL	T	M6	2(S7), 6(S9)	–
㉘	POLE BASE (SUP)	T	M6	–	–
㉙	POLE BASE (TU)	T	M6	–	–
㉚	COVER PLATE	T	M7	–	–
㉛	DRIVE LEVER ASSEMBLY	T	M7	–	–
㉜	MOTOR BRACKET ASSEMBLY	T	M7	3(S1)	–
㉝	CONTROL CAM	T	M8	(W3)	See, Adjustment procedure for Section 2.4
㉞	LINK LEVER	T	M8	–	–
㉟	MIDDLE GEAR	T	M8	–	–
㊱	LOADING GEAR(T) ASSEMBLY	T	M8	(W1)	See, Adjustment procedure for Section 2.4
㊲	LOADING GEAR(S) ASSEMBLY	T	M8	(W1)	–
㊳	LOADING RING ASSEMBLY	T	M8	4(S1)	See, Adjustment procedure for Section 2.4

TOP VIEW


24
26
32
38
1
30
29
28
4
37
2
5
9
3
35
19
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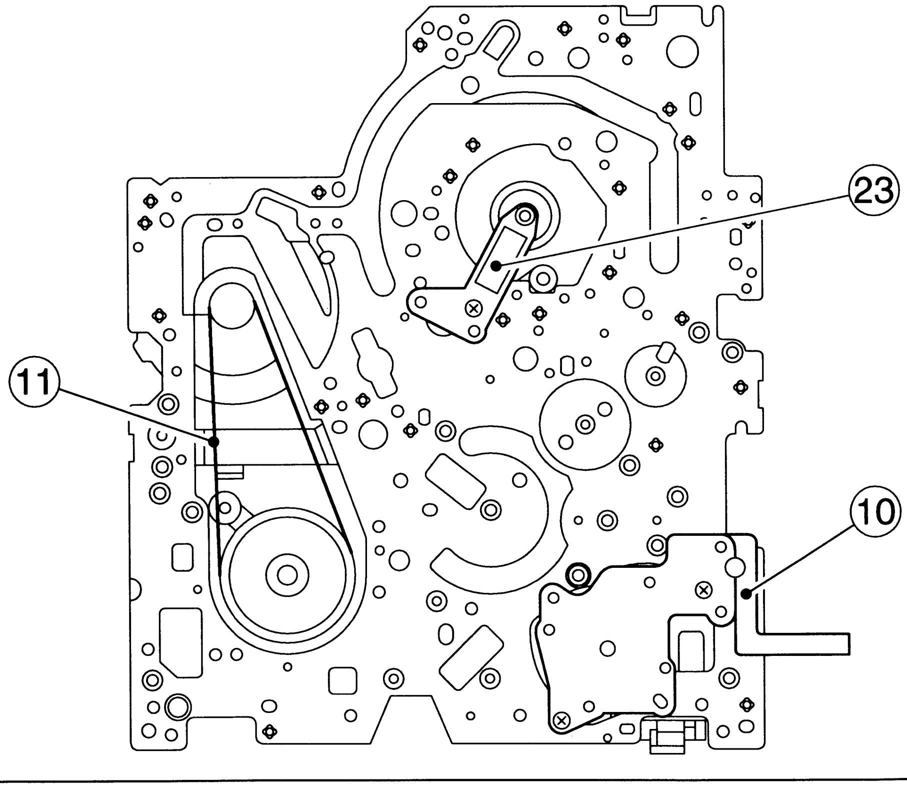
22
16
15
13
14
17
12
7
36
31
8
6
33
34

BOTTOM VIEW



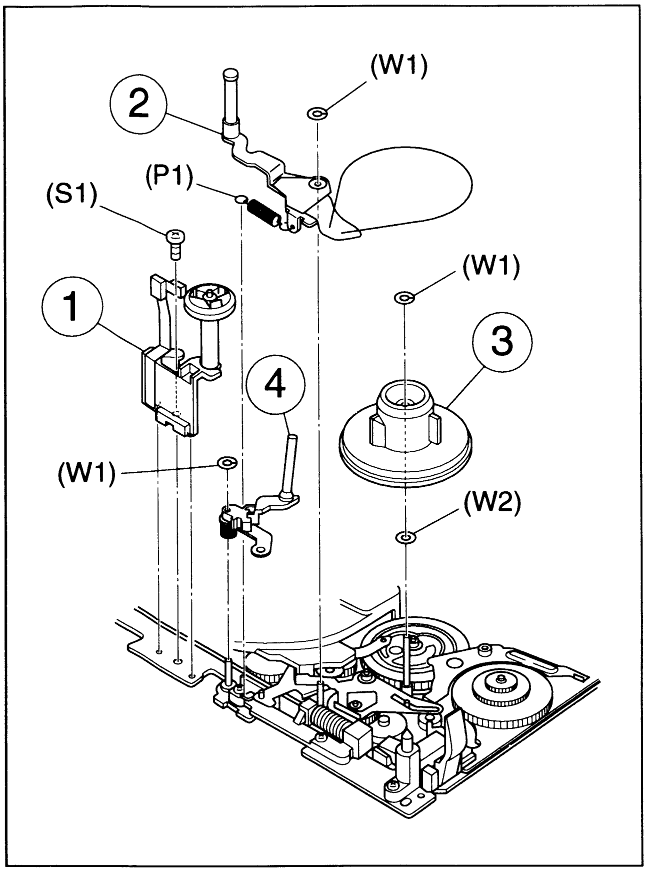

(W1)
2
(P1)
(S1)
1
(W1)
4
3
(W1)
(W2)

Fig. M1

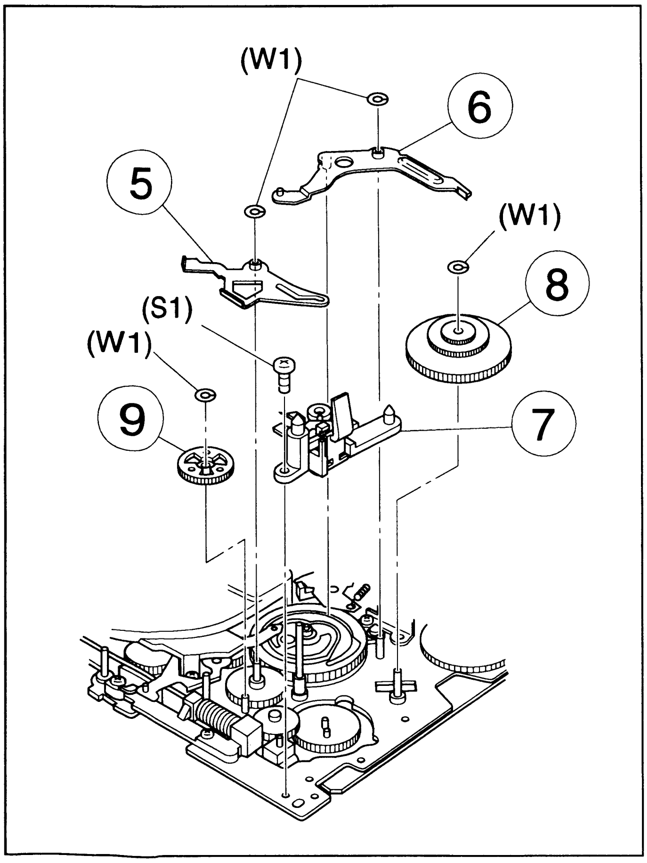

(W1)
6
5
(W1)
(W1)
8
(S1)
(W1)
9
7

Fig. M2

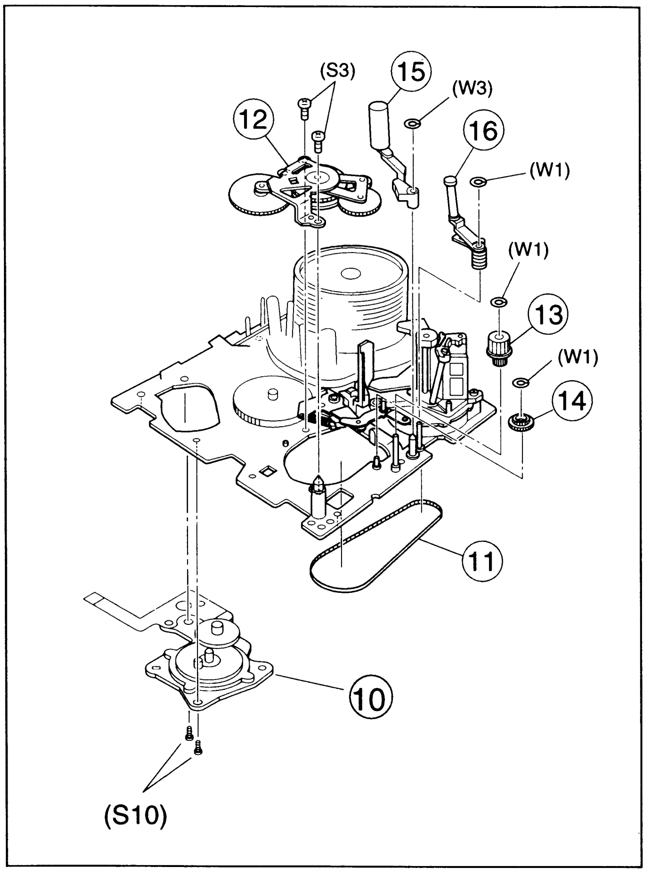

(S3)
15
(W3)
12
16
(W1)
(W1)
13
(W1)
14
11
10
(S10)

Fig. M3

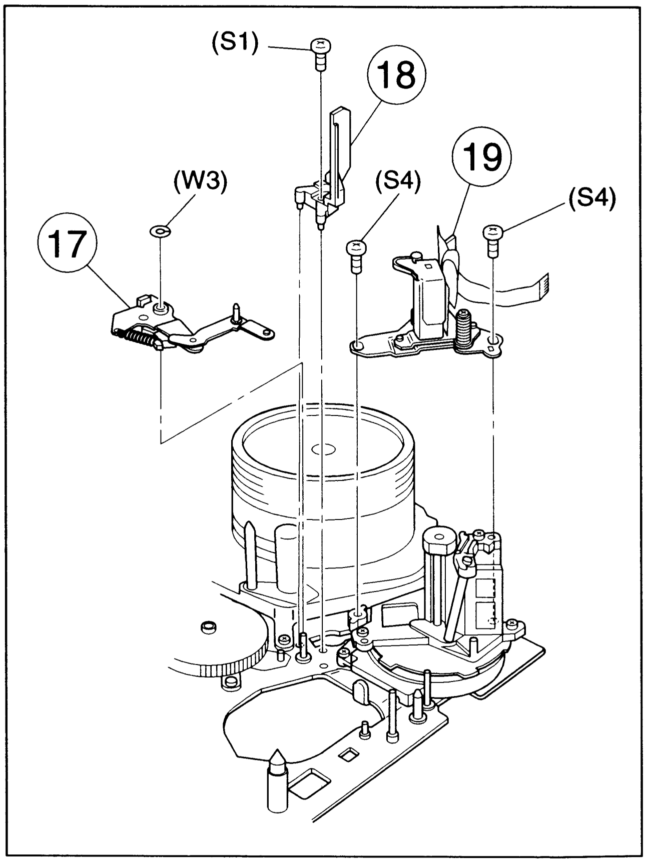

(S1)
18
19
(W3)
(S4)
(S4)
17

Fig. M4

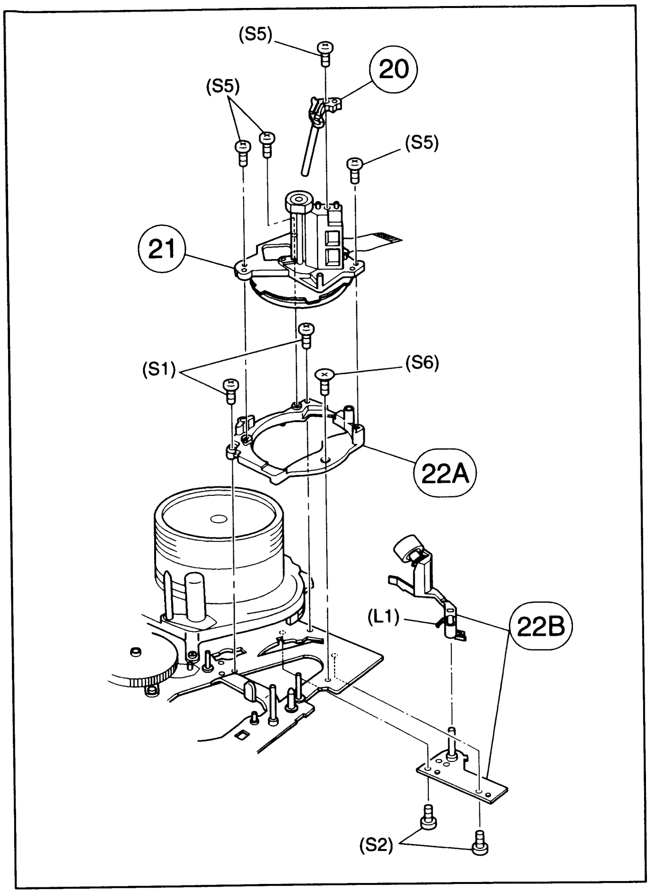

(S5)
20
(S5)
(S5)
21
(S1)
(S6)
22A
(L1)
22B
(S2)

Fig. M5

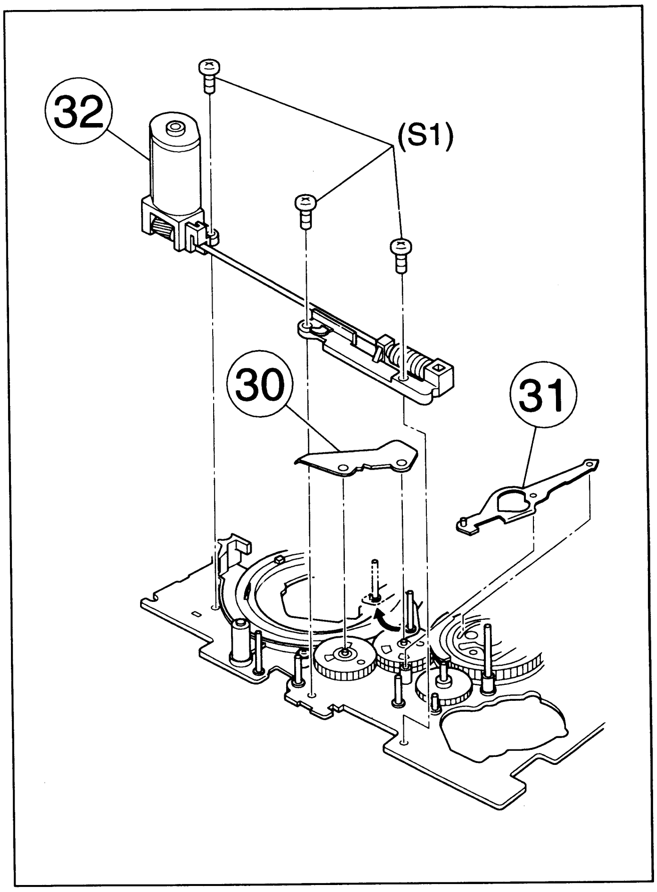


Fig. M7

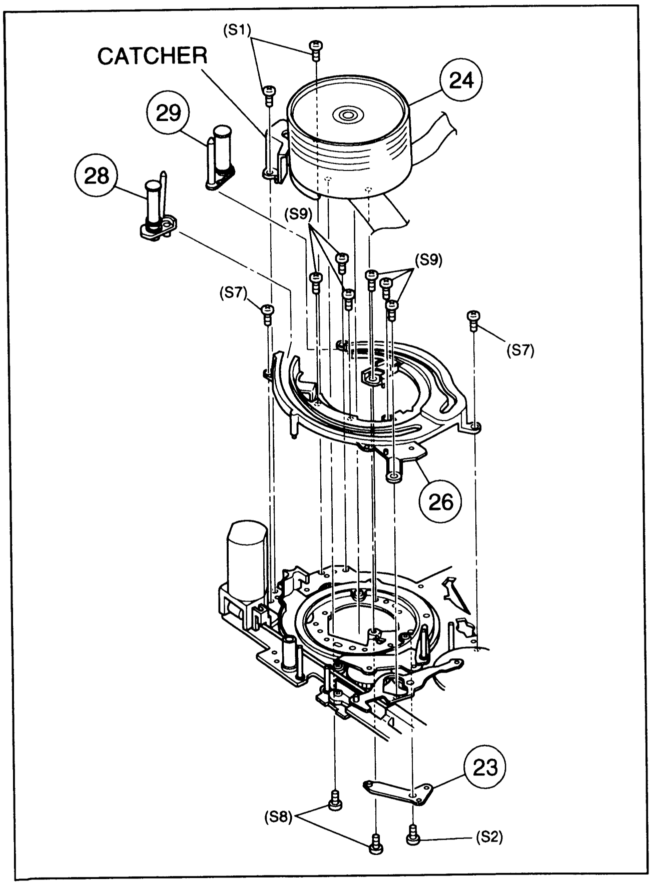

(S1)
CATCHER
24
29
28
(S9)
(S9)
(S7)
(S7)
26
23
(S8)
(S2)

Fig. M6

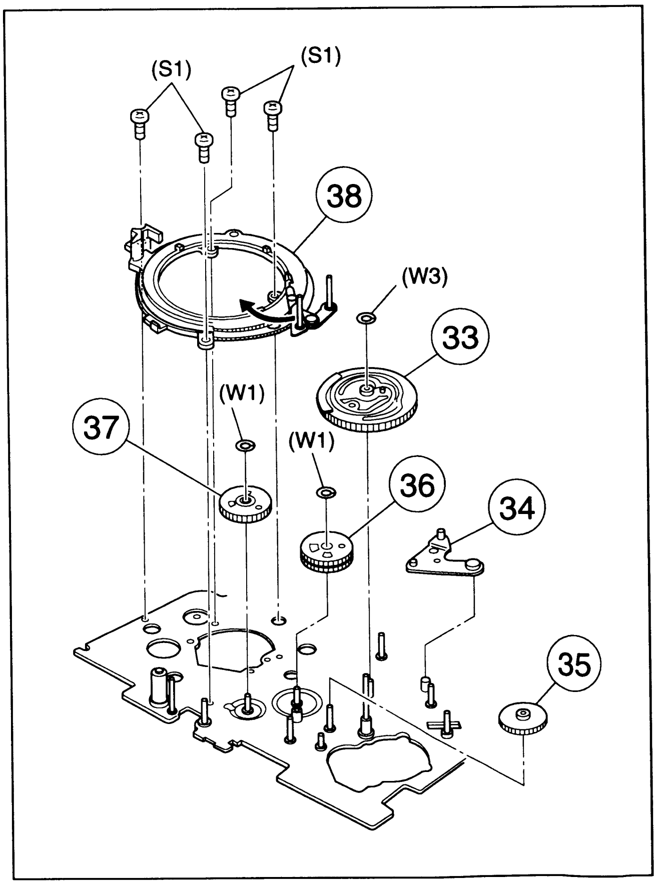

(S1)
(S1)
38
(W3)
33
(W1)
37
(W1)
36
34
35

Fig. M8

2.3 REPLACEMENT OF UPPER DRUM

Note: *Be very careful not to touch any hand of a new upper drum as well as not to damage the drum.*

2.3.1 Removal of upper drum

1. Carefully unsolder at 10 points shown in Fig. 2-3-1 on the UPPER DRUM board.

   Note: *If solder is not completely removed, it may cause damage of the head pins when the upper drum is removed.*

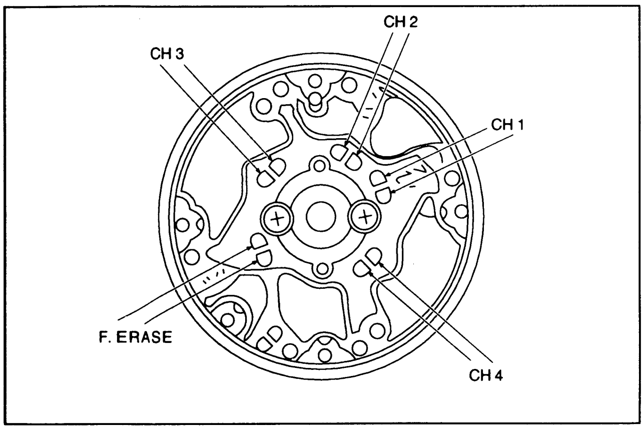


Fig. 2-3-1 Upper drum replacement (1)

2. Remove two screws and draw out the upper drum in the direction of the arrow.

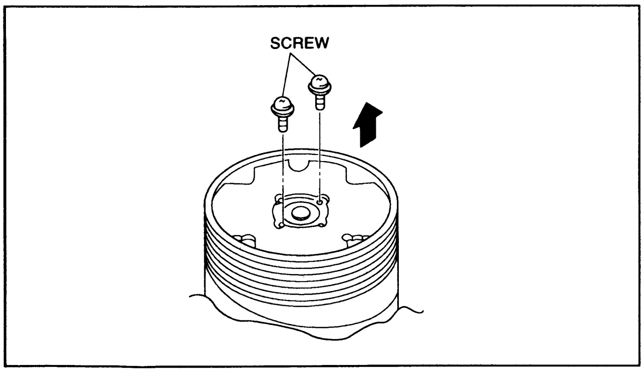


Fig. 2-3-2 Upper drum replacement (2)

3. When it is hard to remove the upper drum, set the upper drum removal tool (YTU94031A) with the screws which are once removed in the step 2, and tighten the center screw to remove it easily.

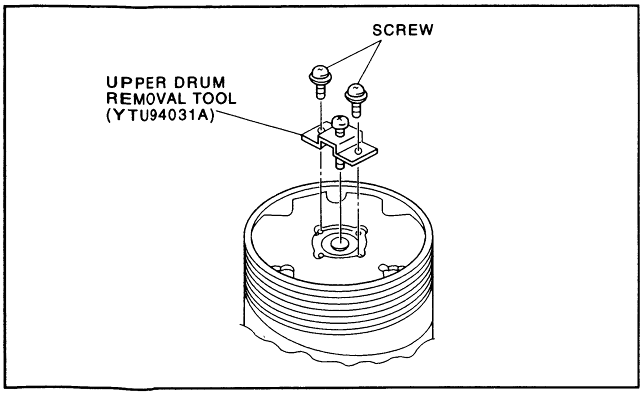


Fig. 2-3-3 Upper drum replacement (3)

2.3.2 Installation of new upper drum

1. Before installing a new upper drum, insert a soldering iron (50 W) into the hole of the upper drum and heat it for about 3 to 5 minutes to expand it.

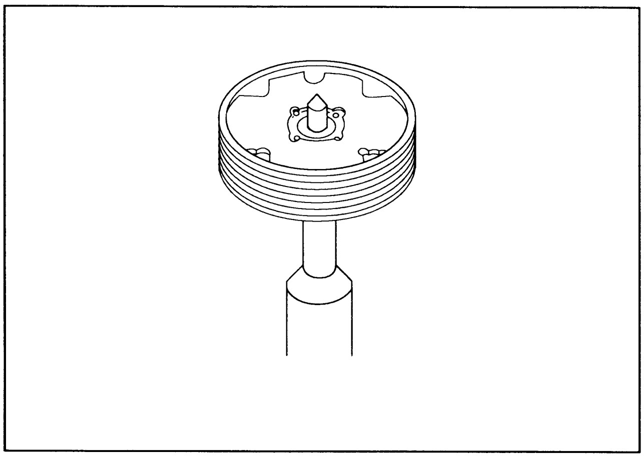


Fig. 2-3-4 Upper drum replacement (4)

2. Install the new upper drum so that its arrow marking is positioned at an angle of 140° to the rotary transformer's mold (having no relay pin) of the lower drum.

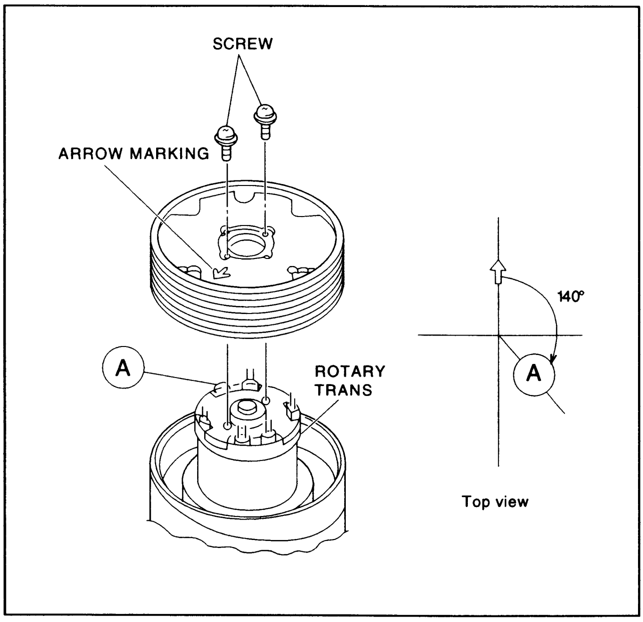
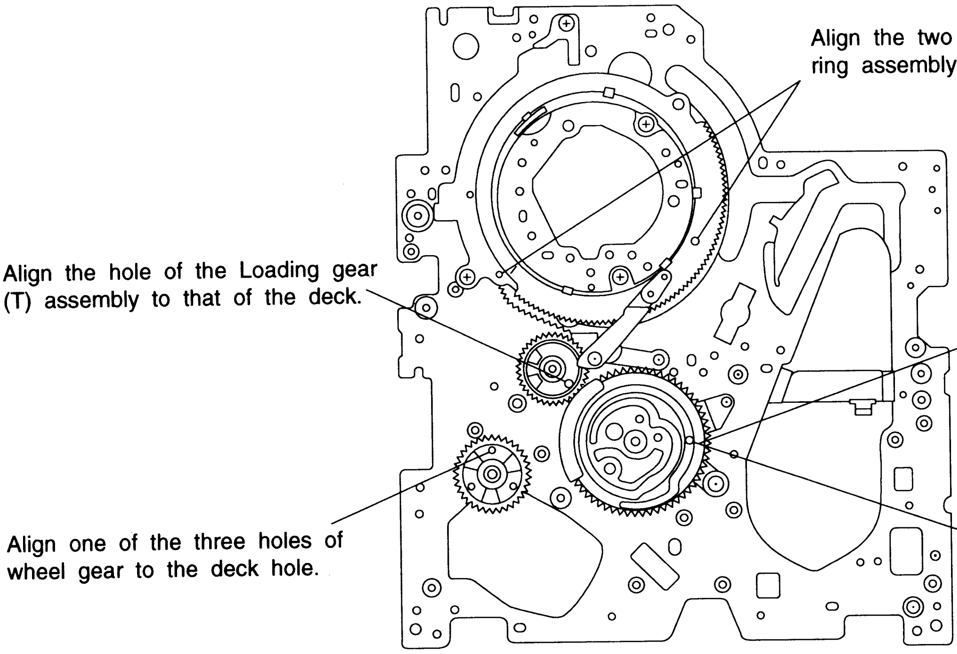


Fig. 2-3-5 Upper drum replacement (5)

3. Tighten the screws lightly first, then, alternately tighten them gradually as the upper drum is cooled.
4. After replacement finishes, make sure to check up and deck section adjustment.

2.4 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

Note: *Pay careful attention to the installing order and phase of mechanism parts of the loading system.*


Align the two holes of the Loading ring assembly to those of the deck.

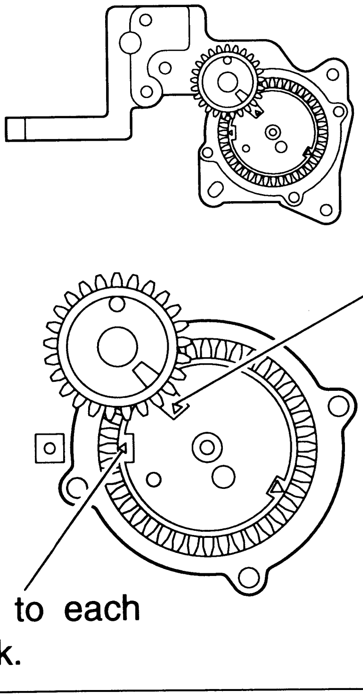
Align the hole of the Loading gear (T) assembly to that of the deck.

Align the hole of the link lever assembly to the deck hole.

Align one of the three holes of wheel gear to the deck hole.

Align each one link lever assembly hole and deck hole to the hole at the control cam position.

Fig. 2-4-1 TOP OF MAIN DECK


Align this part to each "Triangle" mark.

Align this part to each "Triangle" mark.

Fig. 2-4-2 ROTARY ENCODER

2.5 TAPE TRANSPORT ADJUSTMENT

In most cases the deck section is in need electrical adjustment, it results from replacement of worm mechanical parts or video heads. In the event of malfunction with electrical circuits, troubleshouting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

2.5.1 Required adjustment tools

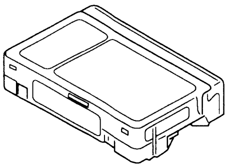
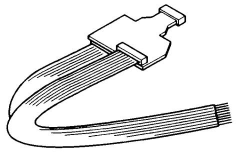
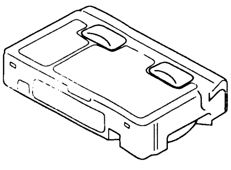
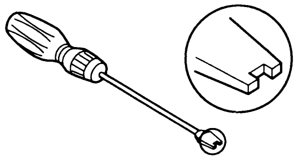
Alignment tape for SP/LP interchangeability MHPE-C: SP/MHPE-LC: LP	PATCH CORD YTU93082A
	
Cassette torque meter PUJ50431-2	Roller driver PTU94002
	

Table 2-5-1

2.5.2 Back tension

1. Set a cassette torque meter onto the deck and measure the back tension in standard REC mode to confirm that the back tension is 9.5 – 17.5 gf•cm.
2. If not, replace the tension band.
   When the value widely fluctuates in the measurement, replace the supply reel disk.
3. With the cassette torque meter, confirm that the play torque is 15 – 25 gf•cm.
   If necessary, replace the center pully unit.

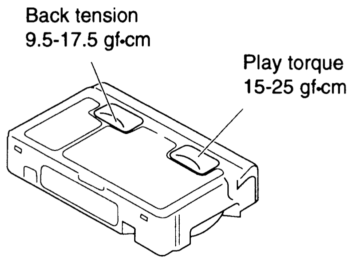


Fig. 2-5-1 Cassette torque meter

2.5.3 Tape pattern

1. Remove the one screw Ⓐ and remove the connector cover Ⓑ of the upper case assembly as shown on Fig. 2-7-1.(Page 2-11)
2. Connect the patch cord (YTU93082A) to CN207 on the MAIN2 board.
3. Observe signal at pin 3 of CN1 (V. TP FM) with external trigger from pin 6 of CN1 (V. FF) on the patch cord.
4. Play back the SP stairstep signal of the alignment tape, and maximize the FM waveform by the tracking button.
5. Set the tracking control to the center position by simultaneously pressing the tracking (-) and (+) buttons and maximize the FM waveform by the tracking button.
6. If the observed FM waveform is not flat, adjust the height of the supply of take-up guide roller with the roller driver (PTU94002).

Note: *To prevent the tape from damage, turn the guide rollers slowly.*

7. By operating the tracking button (both in + and – directions) in the manual tracking mode, vary the output level of the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape.
8. When the FM waveform breaks in the level varying process, subtly adjust the height of guide rollers at every breaking point so that the waveform varies as flat as possible.
   Repeat the above steps 6. and 7. several times to confirm that the waveform is flat as a whole.
9. Play the LP stair stepsignal of alignment tape and adjust the tracking control to maximize the FM waveform, confirm that FM waveform variation is always flat.
10. Record the signal and play it back in both of the SP and LP modes, and confirm that the FM waveform is flat in both modes.

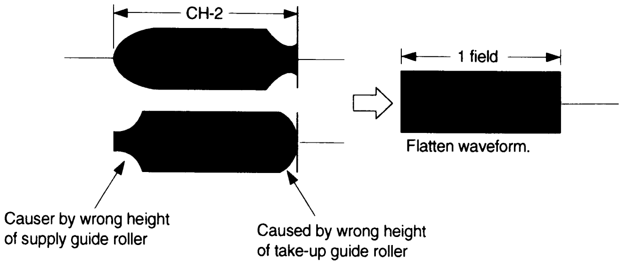


Fig. 2-5-2 FM waveform-1

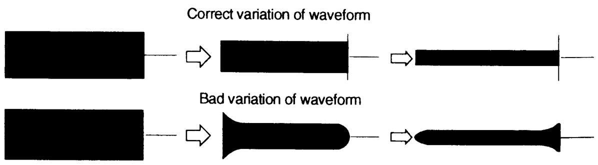


Fig. 2-5-3 FM waveform-2

11. Through the above steps, confirm that there occur no wrinkling and damage in the tape around the pinch roller and TU guide pole whenever the deck is in operation of Loading/Unloading, Search Rewind and at mode change from Search Rewind to play mode. If wrinkling or damage in the tape occurs around the TU guide pole, adjust the angle (slant) of the A/C head to the tape. So that the tape normally runs along the lower flange of the guide pole.

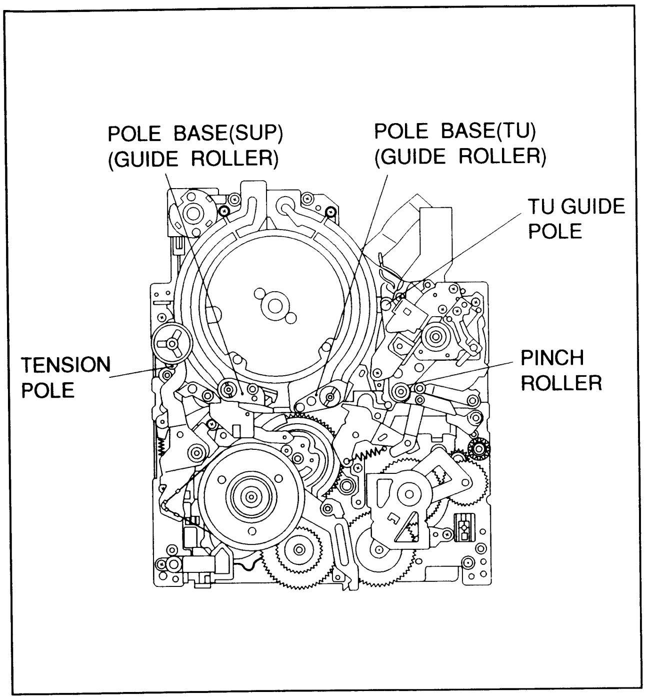

POLE BASE(SUP)
(GUIDE ROLLER)
POLE BASE(TU)
(GUIDE ROLLER)
TU GUIDE POLE
TENSION POLE
PINCH ROLLER

Fig. 2-5-4 Tape transport system

2.5.4 A/CTL head height & azimuth

1. Connect the patch cord (YTU93082A) to CN207 on the MAIN2 board.
2. Connect the channel-1 scope probe to the audio output and connect the channel-2 scope probe to CN1 pin 8 on the patch cord.
3. Set the tracking to its center range by pressing the (+) and (–) tracking controls simultaneously.
4. Adjust screws Ⓐ, Ⓑ and Ⓒ approximately 45 degrees in the same direction to obtain maximum audio output and CTL signal levels.
5. As a final fine adjustment, adjust screw Ⓑ for minimum signal level fluctuation and screw Ⓒ for maximum output signal level.

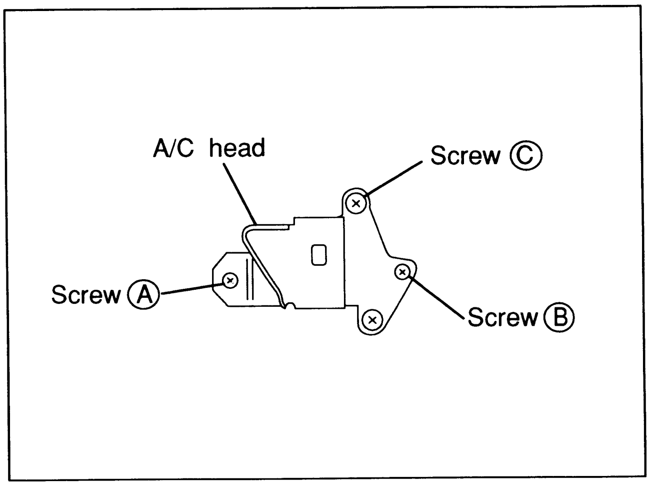

A/C head
Screw Ⓒ
Screw Ⓐ
Screw Ⓑ

Fig. 2-5-5 A/C head

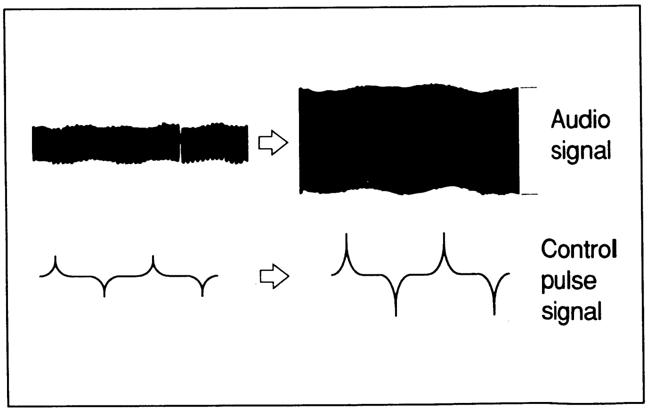

Audio signal
Control pulse signal

Fig. 2-5-6 Audio and CTL signal

2.5.5 Phase of control head (X value)

1. Connect the patch cord (YTU93082A) to CN207 on the MAIN2 board.
2. Play back the SP stairstep signal of the alignment tape and observe signal at pin 3 of CN1 (V.TP FM) with external trigger from pin 6 of CN1 (V.FF) on the patch cord.
3. Operate the tracking button in the center and manual tracking mode by pressing the tracking (+) and (–) buttons and confirm that the FM output level is maximum at the center position as shown in Fig. 2-5-8.
4. If necessary, slightly loosen the setscrews Ⓓ and Ⓔ and insert the Tweezers into the notch and guide hole to move the A/C head fully in the direction of the capstan to the extent.
5. Gradually move the A/C head toward the drum to find the position where the FM output level maximum for the first time (a' – b' in Fig. 2-5-8).
6. Fine adjust the phase of the A/C head and tighten the screwsⒹ and Ⓔ at the point a.

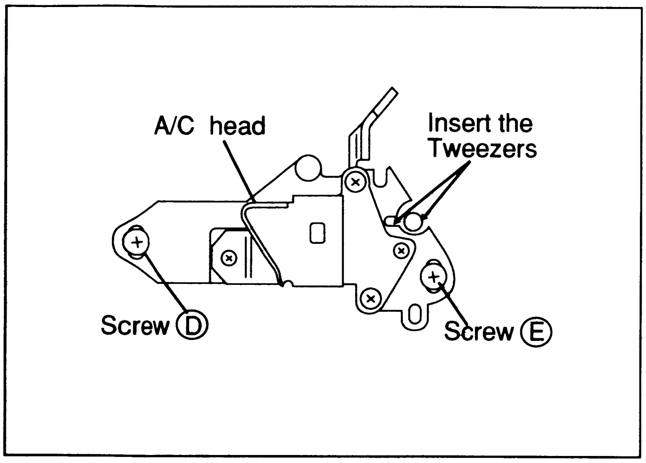


Fig. 2-5-7 Phase of control head

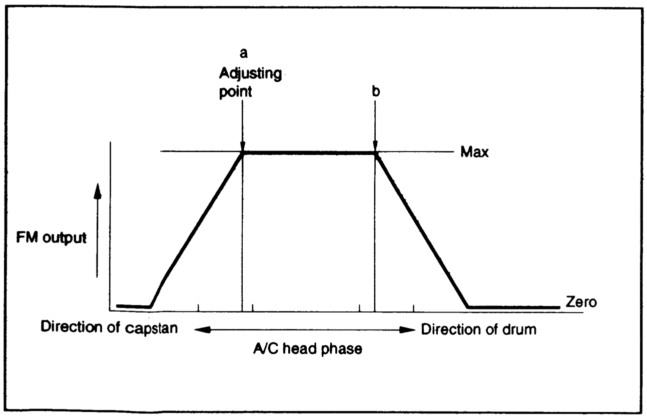


Fig. 2-5-8 Phase adjustment point of control head

2.6 REMARKS

2.6.1 Cleaning

1. For cleaning of the upper drum (particularly video heads), use fine-woven cotton cloth or Kimwipe with alcohol soaks through. Do not move the cloth but turn the upper drum counterclockwise.

   Note: *Make sure not to move the cloth in the vertical direction to the video head, since it may cause damage of the video heads.*

2. For cleaning of parts of the tape transport system except the upper drum, use fine-woven cotton cloth or cotton swab soaked alcohol.
3. After cleaning, confirm that the cleaned parts are completely dry before loading the deck with cassette tape.

2.6.2 Applying oil and grease

1. Periodical oiling and greasing are not required but should be done to new parts when replacing. If oil and grease on the other parts of the other party are old and dirty, wipe them clean and apply new oil or grease.
2. For parts and points to apply oil and grease, refer to the exploded view of the mechanism assembly (M3). Table 2-6-1 specifies oil and grease to be used.
3. When oiling, clean the objective parts with alcohol first and apply one or two drop(s) of oil. Too much oiling causes rotary parts to slip because of oil leakage.

Classification	Name	Part No.	Symbol in drawing
Grease	Grease	KYODO-SH-P	AA
Oil	Cosmo Hydro HV100	YTU94027	BB

Table 2-6-1 Specific oil and grease to be used

2.6.3 Checkup

After replacement of the supply reel disk and tension band, make sure to inspect back tension according to the adjustment procedure of MECHANISM ADJUSTMENT section.

2.7 PATCH CORD (YTU93082A) CONNECTION

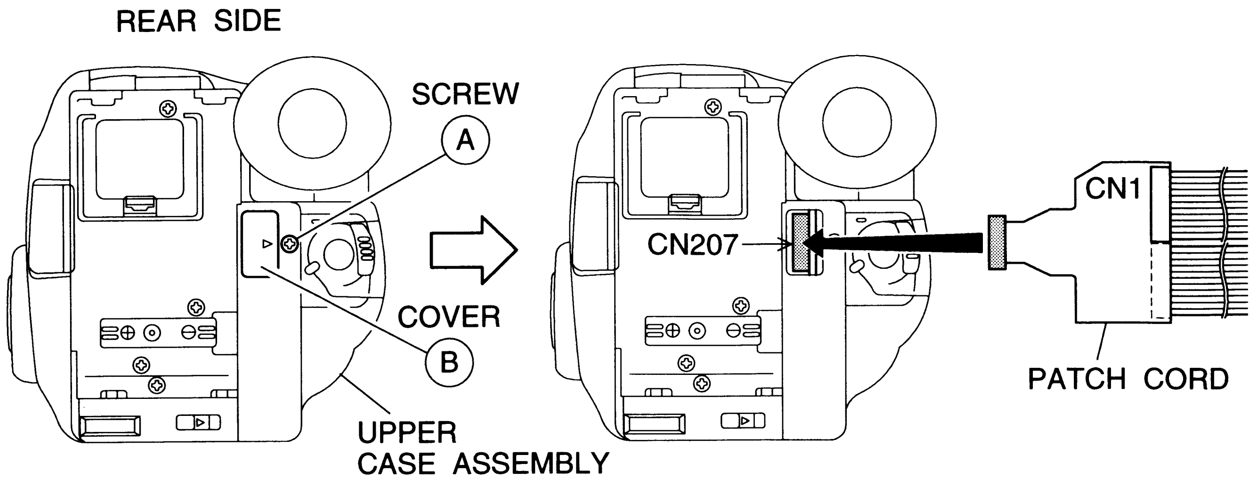

REAR SIDE
SCREW
A
COVER
B
UPPER CASE ASSEMBLY
CN207
CN1
PATCH CORD

Fig. 2-7-1 PATCH CORD CONNECTION

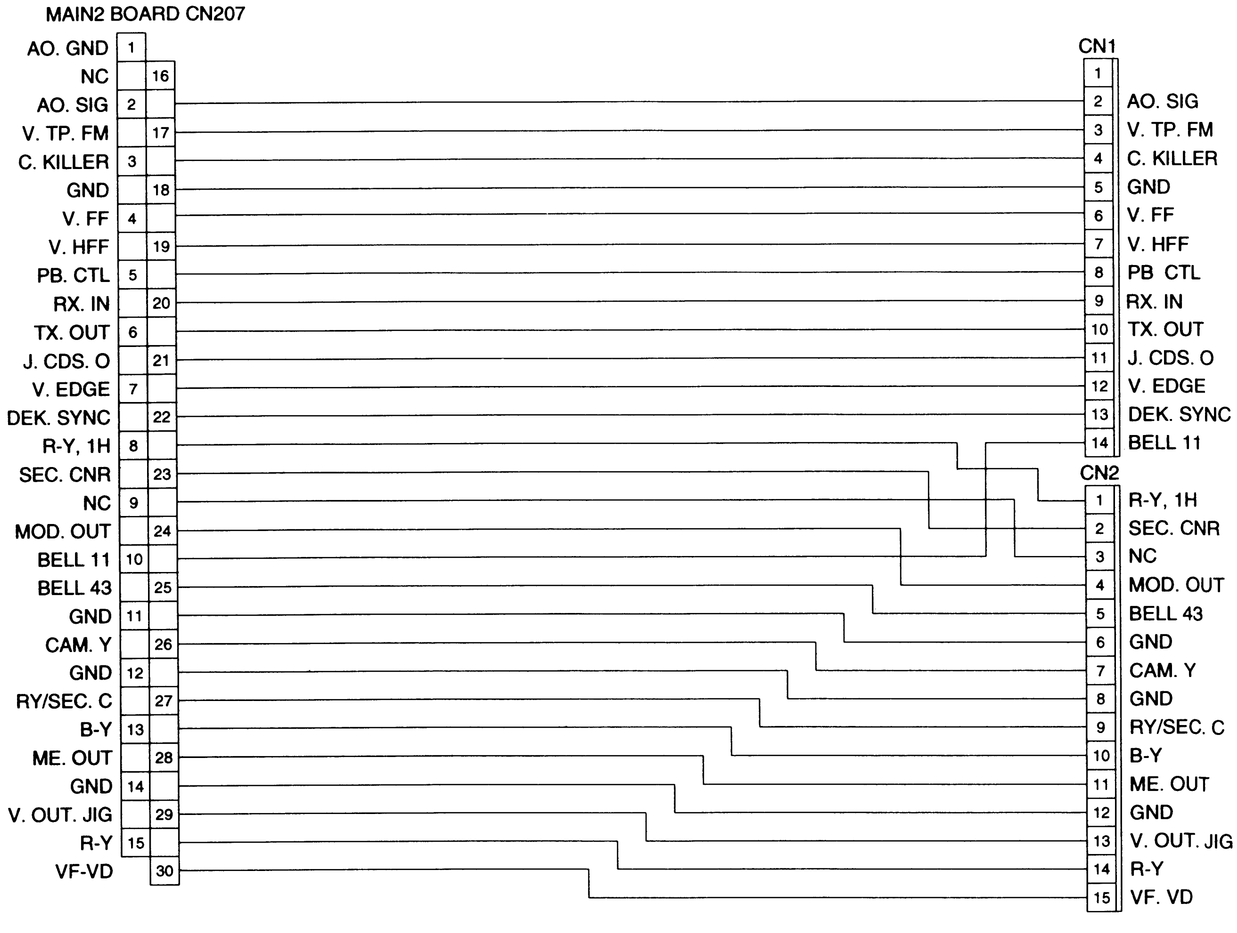

MAIN2 BOARD CN207
AO. GND 1
NC 16
AO. SIG 2
V. TP. FM 17
C. KILLER 3
GND 18
V. FF 4
V. HFF 19
PB. CTL 5
RX. IN 20
TX. OUT 6
J. CDS. O 21
V. EDGE 7
DEK. SYNC 22
R-Y, 1H 8
SEC. CNR 23
NC 9
MOD. OUT 24
BELL 11 10
BELL 43 25
GND 11
CAM. Y 26
GND 12
RY/SEC. C 27
B-Y 13
ME. OUT 28
GND 14
V. OUT. JIG 29
R-Y 15
VF-VD 30
CN1
1
2 AO. SIG
3 V. TP. FM
4 C. KILLER
5 GND
6 V. FF
7 V. HFF
8 PB CTL
9 RX. IN
10 TX. OUT
11 J. CDS. O
12 V. EDGE
13 DEK. SYNC
14 BELL 11
CN2
1 R-Y, 1H
2 SEC. CNR
3 NC
4 MOD. OUT
5 BELL 43
6 GND
7 CAM. Y
8 GND
9 RY/SEC. C
10 B-Y
11 ME. OUT
12 GND
13 V. OUT. JIG
14 R-Y
15 VF. VD

Fig. 2-7-2 PATCH CORD SCHEMATIC DIAGRAM

SECTION 3
ELECTRICAL ADJUSTMENT

3.1 ELECTRICAL ADJUSTMENT

3.1.1 PREPARATION

1. Precaution

This model does not contain adjustment controls (VR). General deck system and camera system adjustment are not required. However, if MAIN board need replacement, please use original E²PROM on to new board. Then adjustment are not required. And if parts such as the following need replacement, special computerized adjustment are required (Refer to sec. 3.1.1-5). Please contact to JVC service for detaile information.

- OP block
- E²PROM (IC104 of MAIN2 board)

In the event of malfunction with electrical circuits, troubleshooting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

1. In case of wiring to chip test points for measurement, use IC clips, etc. to avoid any stress.
2. Since connectors are fragile, carefully handle them in disconnecting and connecting.
3. Shortcircuit between operation un it and DECK chassis.

2. Required test equipment

1. Colour TV monitor.
2. AC power adapter (AA-V11 and AA-V6 or equivalent).
3. Oscilloscope (dual-trace type, for more than 20 MHz).
4. Digital voltmeter
5. Personal computer

3. Required adjustment tools

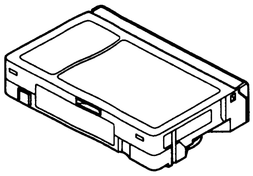
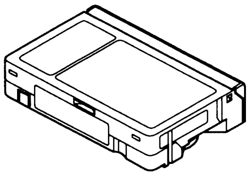
Alignment tape for SP Interchangeability (MHPE-C)	Alignment tape for N. SP PB Y/C level (MHVE-2C)
	

Table 3-1-1 Required adjustment tools

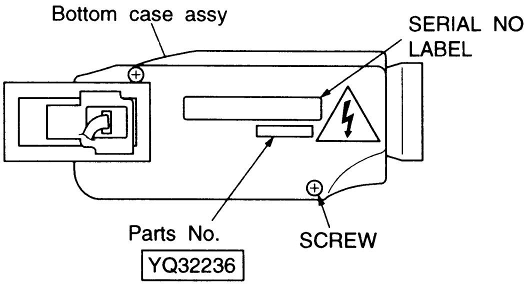
4. Setup for E. VF section adjustment

1. Referring to "SEC. 1 DISASSEMBLY" and connect the E. VF connector CN1 of the E. VF board to CN206 of the MAIN board of deck section (for AX270EG/AX275EG/AX470EG).

Note:

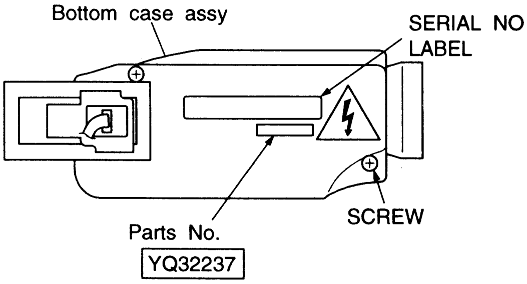
- *There are two types of E. VFs for this model.*
- *The adjustment procedure of them are different. For performing the adjustment, please follow the item mentioned on the figure below.*

<TYPE M> (YQ32236)



Adjustment Item : 3.2

<TYPE T> (YQ32237)



Adjustment Item : 3.3

2. Referring to "SEC. 1 DISASSEMBLY" and connect the COLOR VF connector CN101 of the VF board to CN206 of the MAIN board of deck section (for AX370EG).

5. Required adjustment tools for Service support system

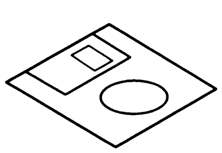
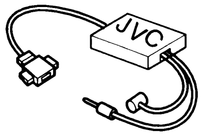
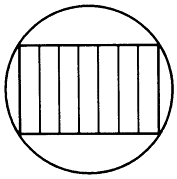
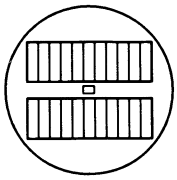
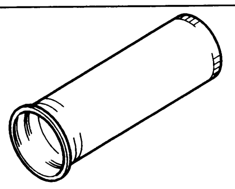
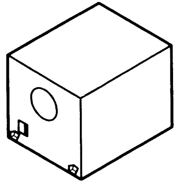
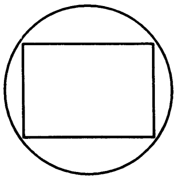
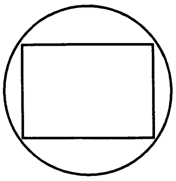
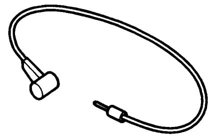
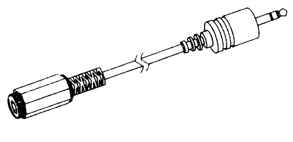
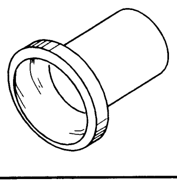
service suport system software YTU94057-22	Interface cable YTU93063	Color bar chart YTU92001-051	Gray scale chart YTU92001-052
			
Infinity adjustment lens YTU92001B	Light box YTU93072A-1	White balance chart YTU92001-053	Skintone chart YTU92001-054
			
Adapter cable YTU94066	JLIP conversion cable YTU94084A	1 m focus chart YTU92001-016	
			

Table 3-1-2 Required adjustment tools for Service support system

6. Connections for Service support system

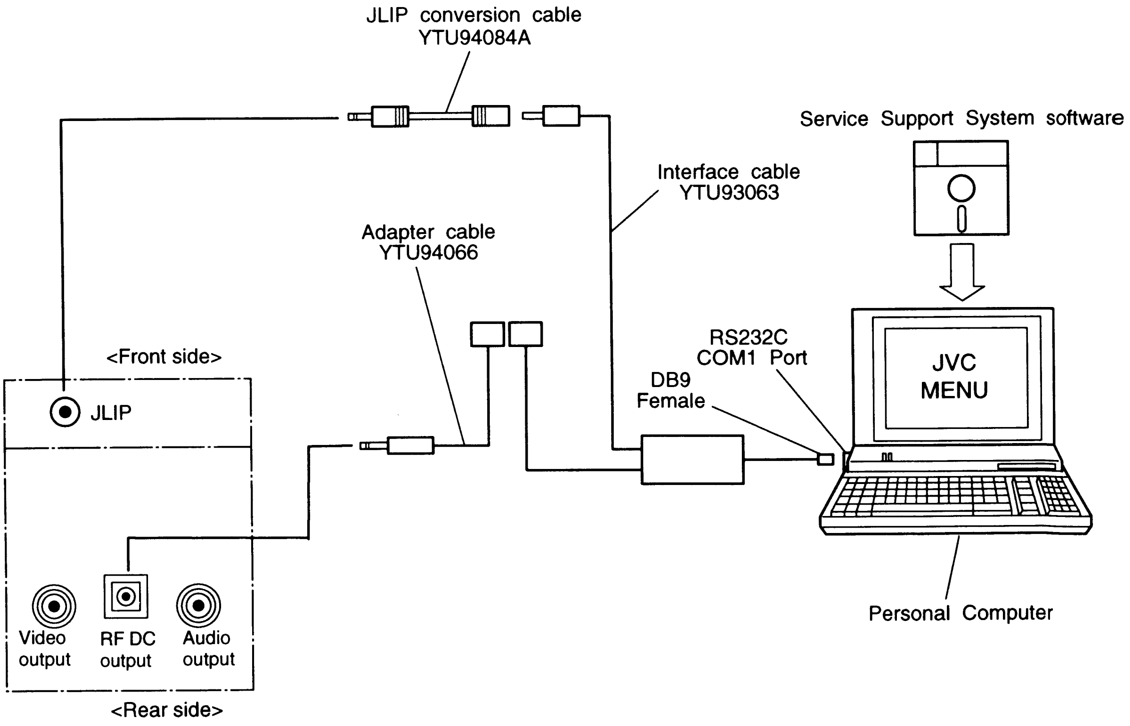

JLIP conversion cable
YTU94084A
Service Support System software
Interface cable
YTU93063
Adapter cable
YTU94066
RS232C
COM1 Port
DB9
Female
<Front side>
JLIP
JVC
MENU
Video
output
RF DC
output
Audio
output
<Rear side>
Personal Computer

Fig. 3-1-1 Connection for Service support system

■ CIRCUIT PROTECTOR LOCATION FOR MAIN1 BOARDS

–MAIN1–

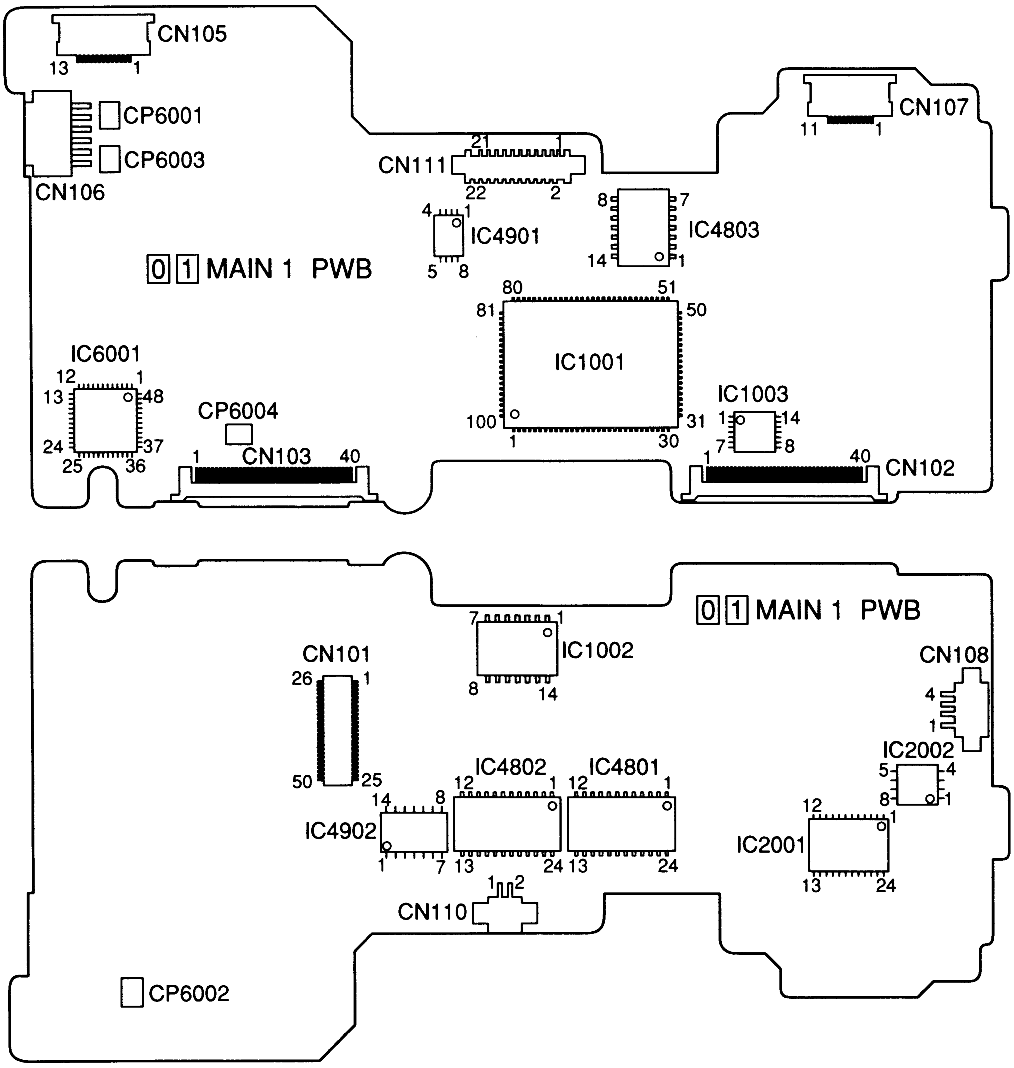

CN105
13
1
CP6001
CP6003
CN106
CN111
21
1
22
2
IC4901
4
1
5
8
IC4803
8
7
14
1
0 1 MAIN 1 PWB
80
51
81
50
IC1001
100
31
1
30
CN107
11
1
IC6001
12
1
13
48
24
37
25
36
CP6004
1
CN103
40
IC1003
1
14
7
8
1
40
CN102
0 1 MAIN 1 PWB
7
1
IC1002
8
14
CN101
26
1
50
25
CN108
4
1
IC2002
5
4
8
1
IC4802
12
1
IC4801
12
1
14
8
IC4902
1
7
13
24
13
24
12
1
IC2001
13
24
1
2
CN110
CP6002

Fig. 3-1-2 Circuit protector and battery terminal location for MAIN board assembly

3.2 ELECTRONIC VIEWFINDER (E. VF) ADJUSTMENT <TYPE M>

Notes: *Unless otherwise specified, all measurement points and adjustment parts are located on E. VF board.*

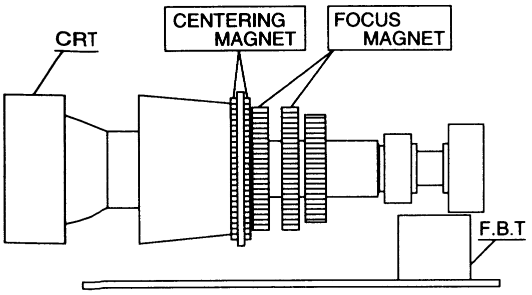

CRT
CENTERING MAGNET
FOCUS MAGNET
F.B.T

Fig. 3-2-1 E. VF

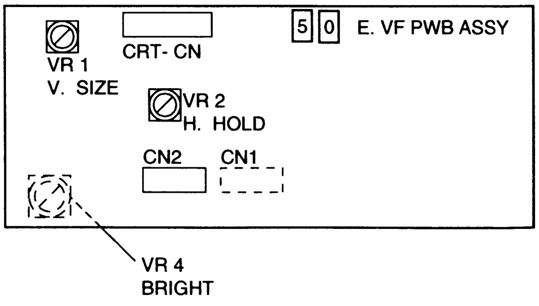

VR 1
V. SIZE
CRT- CN
5 0 E. VF PWB ASSY
VR 2
H. HOLD
CN2
CN1
VR 4
BRIGHT

Fig. 3-2-2 E. VF board

3.2.1 Horizontal sync.

Subject	• Alignment tape [MHP-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR2 (H. HOLD)
Specification	• The midpoint of the two markings

1) Observing the viewfinder screen, turn VR2 fully clockwise to make the picture unstable.
2) Slowly return VR2 counterclockwise to find a point where the picture becomes stable, and mark this position.
3) Turn VR2 fully counterclockwise to make the picture unstable in the same manner as 1) above.
4) Slowly return VR2 clockwise until the picture becomes stable, and mark this position.
5) Finally set VR2 to the midpoint between the two markings of 2) and 4).

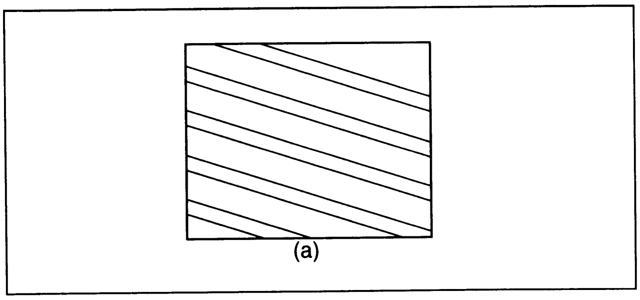


Fig. 3-2-3 Horizontal sync. 1

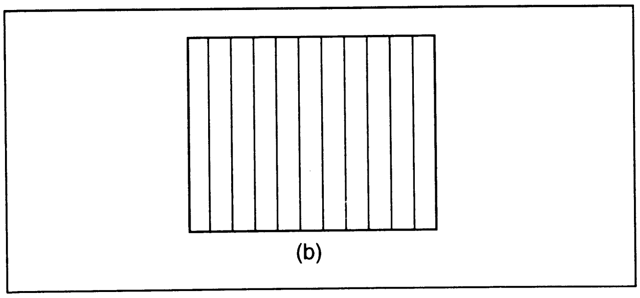


Fig. 3-2-4 Horizontal sync. 2

3.2.2 PLL adjustment

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR1 (V. SIZE)
Specification	• Normal picture amplitude

1) Observing the viewfinder screen, adjust VR1 for normal picture amplitude.

3.2.3 Centering

Subject	• Alignment tape [MHP-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Centering magnet (CRT assy)
Specification	• The center of the E. VF screen

1) While observing the viewfinder screen, adjust the centering magnet to locate the stairstep in the center of the viewfinder screen.

3.2.4 Focus

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurment point	• E. VF screen
Adjustment part	• Focus magnet (CRT assy)
Specification	• The center area is clear and defined

1) While observing the viewfinder screen, adjust the focus magnet for the deflecting yoke so that the picture at the central area of the screen is clear and defined.

3.2.5 Brightness

Subject	• -
Mode	• EE • Lens closed
Equipment	• E. VF
Measurment point	• E. VF screen
Adjustment part	• VR4 (BRIGHT)
Specification	• The CRT raster is just barely visible

1) Close the lens with the cap and adjust VR4 so that the raster of the CRT is just visible in the E. VF.

3.3 ELECTRONIC VIEWFINDER (E. VF) ADJUSTMENT <TYPE T>

Notes:

- *Unless otherwise specified, all measurement points and adjustment parts are located on E. VF board.*
- *After adjustment or replacement of the deflection yoke or the centering magnet, fix it by the band as shown the figure below.*

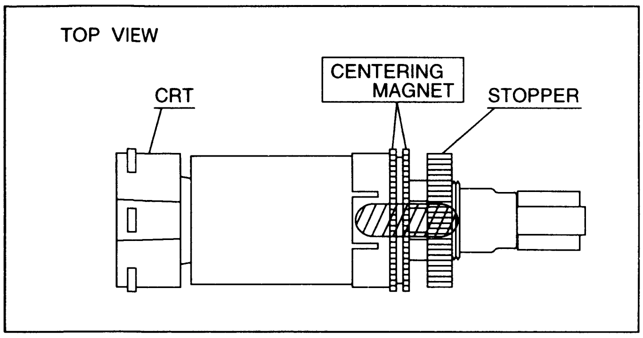


Fig. 3-3-1 E. VF

- *After adjustment is completed, compare the picture on the E. VF screen with the monitor TV.*

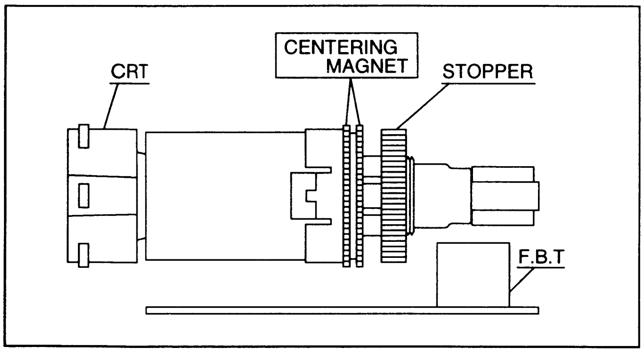


Fig. 3-3-2 E. VF

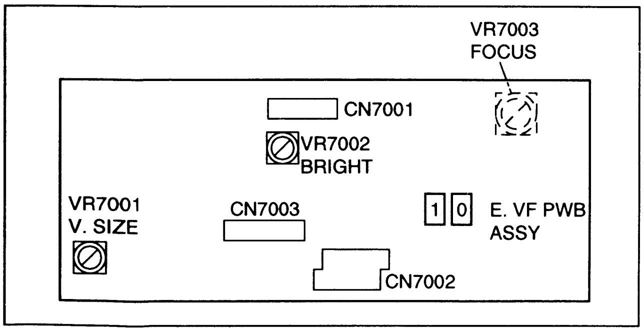


Fig. 3-3-3 E. VF board

3.3.1 Tilt

Subject	• Alignment tape [MHP-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Deflection yoke
Specification	• The picture is visible as same as monitor TV.

1) Put the deflection yoke to the most inner side of CRT neck first. Then fix the stopper temporary.
2) Adjust the tilt of picture on the E. VF screen by tilting the deflection yoke.
3) Fix the stopper completely.

3.3.2 Centering

Subject	• Alignment tape [MHP-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Centering magnet (CRT assy)
Specification	• The center of the E. VF screen

1) While observing the viewfinder screen, adjust the centering magnet to locate the stairstep in the center of the viewfinder screen.

3.3.3 Vertical scanning

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7001 (V. SIZE)
Specification	• Normal picture amplitude

1) Observing the viewfinder screen, adjust VR7001 for normal picture amplitude.

3.3.4 Brightness

Subject	• –
Mode	• EE • Lens closed
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7002 (BRIGHT)
Specification	• The CRT raster is just barely visible

1) Close the lens with the cap and adjust VR7002 so that the raster of the CRT is just visible in the E. VF.

3.3.5 Focus

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7003 (FOCUS)
Specification	• The center area is clear and defined

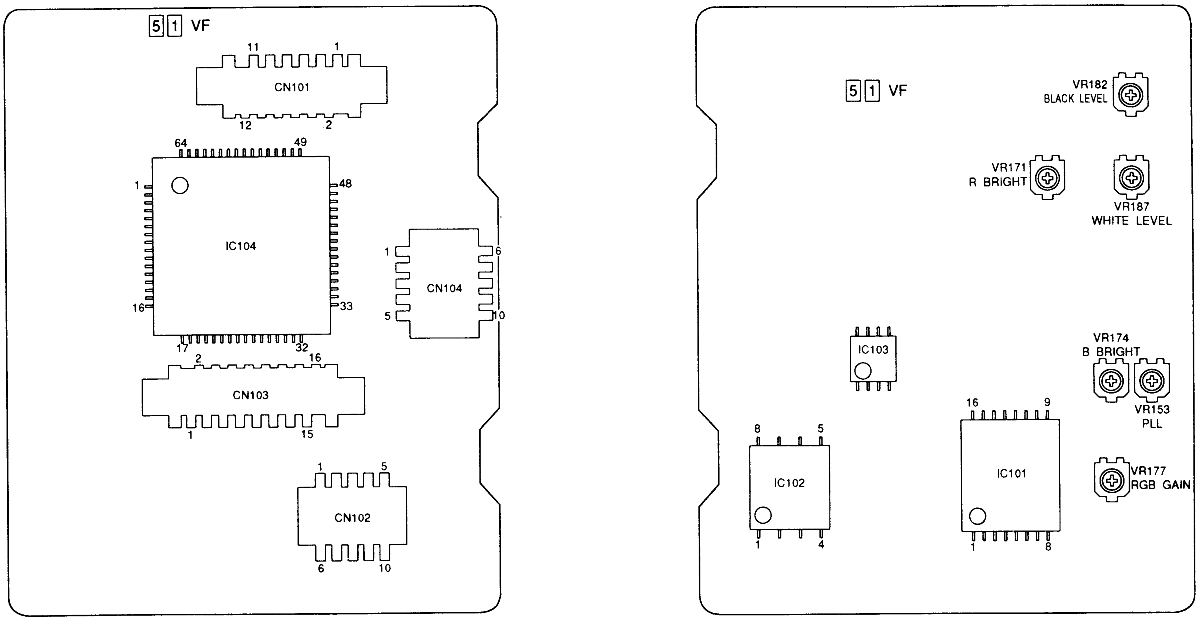
1) While observing the viewfinder screen, adjust VR7003 so that the picture at the central area of the screen is clear and defined.

3.4 COLOR VIEWFINDER SECTION ADJUSTMENT (FOR AX370EG)

Notes: *Unless otherwise specified, all measurement points and adjustment parts are located on CLD board.*

■ ADJUSTMENT ELEMENT LOCATION FOR COLOR VIEWFINDER SECTION

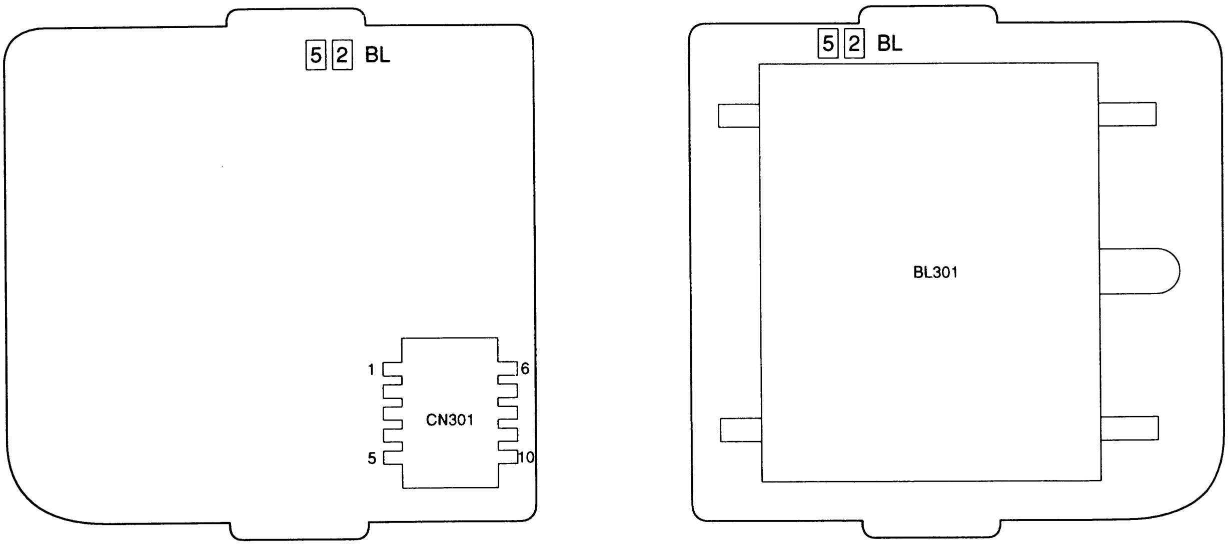
–VF–



5 1 VF
CN101
11
1
12
2
IC104
64
49
1
48
16
33
17
32
CN104
1
6
5
10
CN103
2
16
1
15
CN102
1
5
6
10
5 1 VF
VR182
BLACK LEVEL
VR171
R BRIGHT
VR187
WHITE LEVEL
VR174
B BRIGHT
VR153
PLL
VR177
RGB GAIN
IC103
IC102
8
5
1
4
IC101
16
9
1
8

Fig. 3-4-1 Adjustment element location for VF board assembly

–BL–



5 2 BL
CN301
1
6
5
10
5 2 BL
BL301

Fig. 3-4-2 Adjustment element location for BL board assembly

3.4 COLOR VIEWFINDER SECTION ADJUSTMENT (FOR AX370EG)

Notes: *Unless otherwise specified, all measurement points and adjustment parts are located on CLD board.*

■ ADJUSTMENT ELEMENT LOCATION FOR COLOR VIEWFINDER SECTION

–VF–

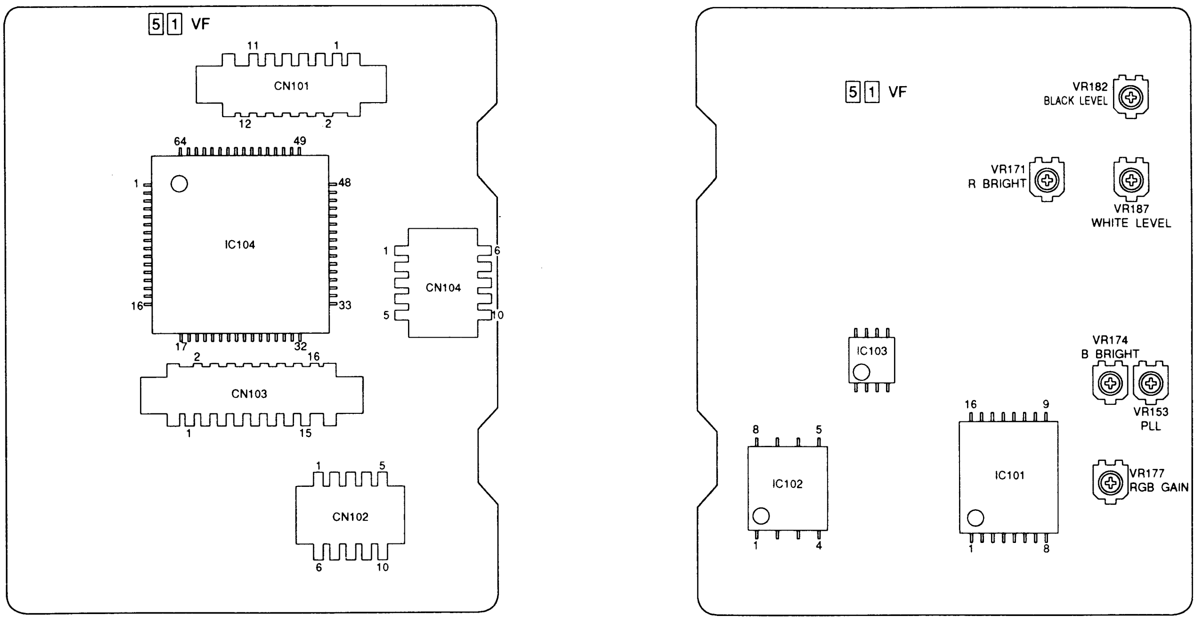

5 1 VF
11
1
CN101
12
2
64
49
1
48
IC104
16
33
17
32
2
16
CN103
1
15
1
6
CN104
5
10
1
5
CN102
6
10
5 1 VF
VR182
BLACK LEVEL
VR171
R BRIGHT
VR187
WHITE LEVEL
VR174
B BRIGHT
VR153
PLL
VR177
RGB GAIN
IC103
16
9
IC101
1
8
8
5
IC102
1
4

Fig. 3-4-1 Adjustment element location for VF board assembly

–BL–

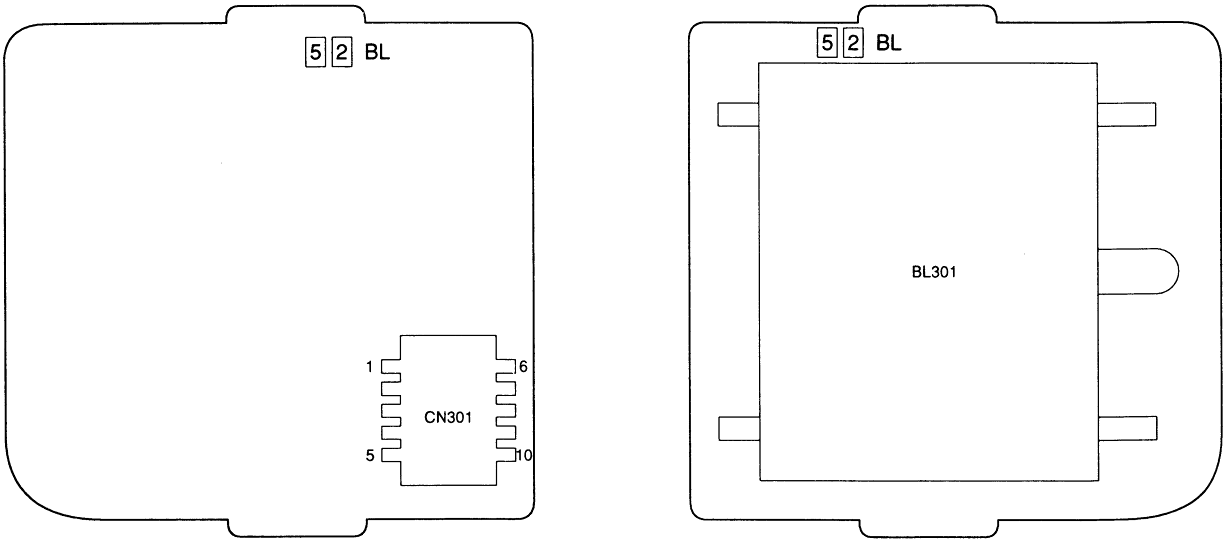

5 2 BL
1
6
CN301
5
10
5 2 BL
BL301

Fig. 3-4-2 Adjustment element location for BL board assembly

3.4.1 PLL

Subject	• -
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• CN104 pin ④ (RPD)
Adjustment part	• VR153 (PLL)
Specification	• "A" = 2.9 ± 0.1 V DC

1) Obvserve waveform at pin ④ of the CN104.
2) Adjust VR153 so that DC level of "A" (between the waveform center and GND, see Fig. 3-4-3) of a waveform becomes 2.9 V DC.

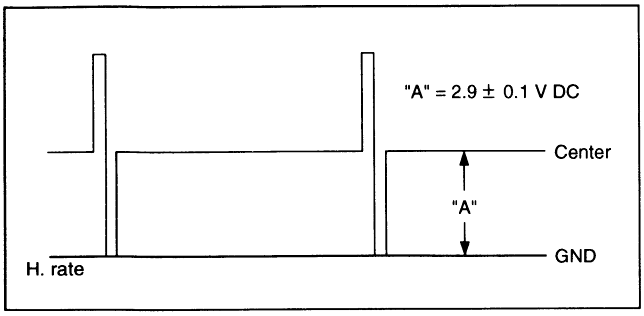


Fig. 3-4-3 PLL

3.4.2 White level

Subject	• Alignment tape • SP stairstep
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• CN104 pin ③ (G OUT)
Adjustment part	• VR187 (WHITE LEVEL)
Specification	• "A" = 1.6 ± 0.1 V DC

1) Obvserve waveform at pin ③ of the CN104.
2) Adjust VR187 so that DC level of "A" (between the waveform GND and TOP, see Fig. 3-4-4) of a waveform becomes 1.6 V DC.

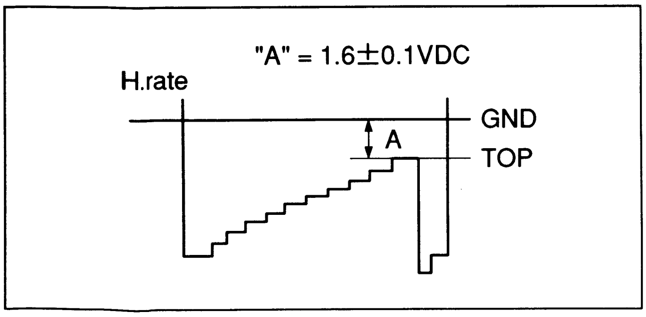


Fig. 3-4-4 White level

3.4.3 Black level

Subject	• Alignment tape • SP stairstep
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• CN104 pin ③ (G OUT)
Adjustment part	• VR182 (BLACK LEVEL)
Specification	• "A" = 3.4 ± 0.1 V DC

1) Obvserve waveform at pin ③ of the CN104.
2) Adjust VR182 so that DC level of "A" (between the waveform GND and first step, see Fig. 3-4-5) of a waveform becomes 3.4 V DC.

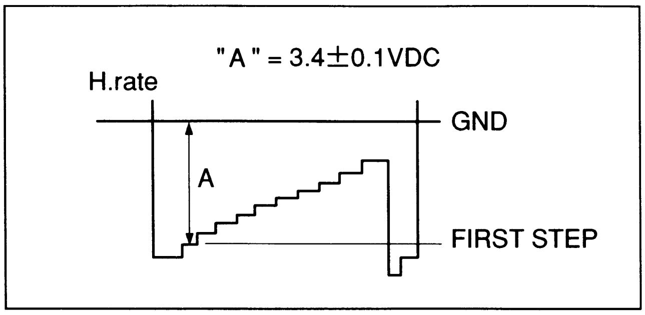


Fig. 3-4-5 Black level

3.4.4 Middle gray level

Subject	• Alignment tape • SP stairstep
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• CN104 pin ③ (G OUT)
Adjustment part	• VR177 (RGB GAIN)
Specification	• "A" = 2.4 ± 0.1 V DC • "B" = 3.4 ± 0.2 V DC • "C" = $1.6^{+0.2}_{-0.4}$ V DC

1) Observe waveform at pin ③ of the CN104.
2) Adjust VR177 so that DC level of "A" (between the waveform GND and fifth step, see Fig. 3-4-6) of a waveform becomes 2.4 V DC.
3) And then, confirm that DC level of "B" (between the waveform GND and first step) and "C" (between the waveform GND and top) of a waveform.
4) If necessary, repeat Item 3.4.2 White level or Item 3.4.3 Black level adjustment until they meet the specification respectively.

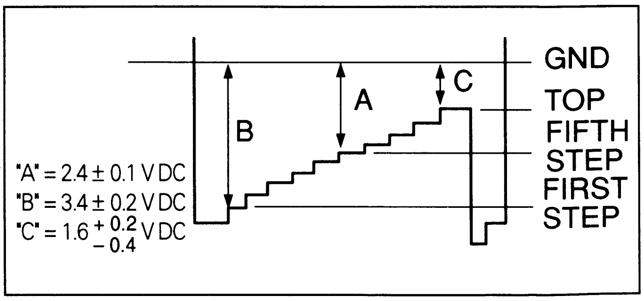


Fig. 3-4-6 Middle gray level

3.4.5 R bright (white bal. R)

Subject	• Alignment tape • SP stairstep
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• CN104 pin ③ (G OUT) • CN104 pin ⑦ (R OUT)
Adjustment part	• VR171 (R BRIGHT)
Specification	• "A" = 0.0 ± 0.1 Vp-p

1) Connect channel 1 of the oscilloscope at pin ③ of CN104.
2) Connect channel 2 of the oscilloscope at pin ⑦ of CN104 in invert mode.
3) Observe two waveforms in add mode, then adjust VR171 so that the signal level of "A" (the third step of stairstep signal) becomes 0.0 Vp-p.

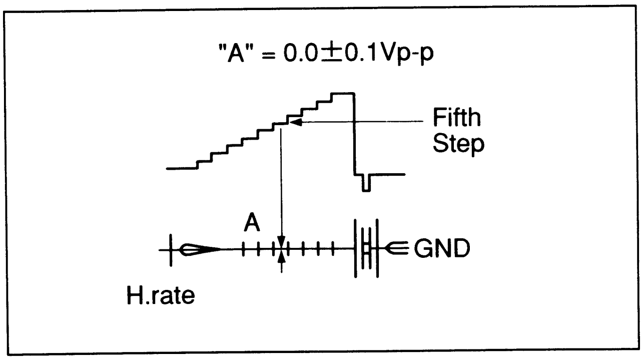


Fig. 3-4-7 R bright (white bal. R)

3.4.6 B bright (white bal. B)

Subject	• Alignment tape • SP stairstep
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• CN104 pin ③ (G OUT) • CN104 pin ⑧ (B OUT)
Adjustment part	• VR174 (B BRIGHT)
Specification	• "A" = 0.3 ± 0.1 Vp-p

1) Connect channel 1 of the oscilloscope at pin ③ of CN104.
2) Connect channel 2 of the oscilloscope at pin ⑧ of CN104 in invert mode.
3) Observe two waveforms in add mode, then adjust VR174 so that the signal level of "A" (the fifth step of stairstep signal) becomes 0.3 Vp-p.

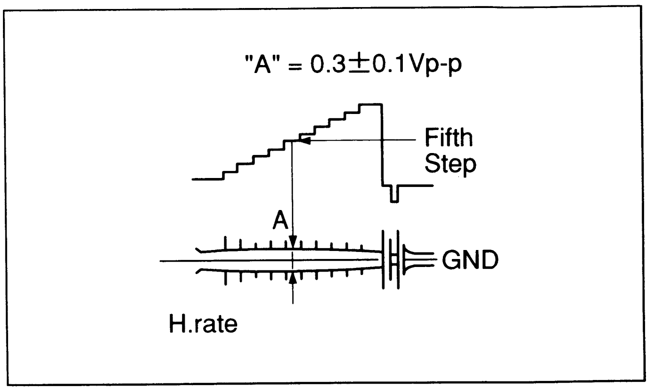


Fig. 3-4-8 B bright (white bal. B)

3.4.7 White balance

Subject	• Alignment tape • SP stairstep
Mode	• PB
Equipment	• C. VF
Measurement point	• C. VF screen
Adjustment part	• VR171 (R BRIGHT) • VR174 (B BRIGHT)
Specification	• Minimize color

1) While observing the viewfinder screen, slight adjust the VR171 (R BRIGHT) and VR174 (B BRIGHT) to minimize color.

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufactures recommended parts.

1. Units of components on the schematic diagram

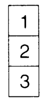
Unless otherwise specified.

1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in µF, (P: PF).
3) All inductance values are in µH, (m: mH).
4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

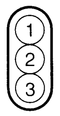
2. Indications of control voltage

AUX : Active only at high
$\overline{\text{AUX}}$ or AUX(L) : Active at low

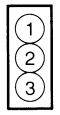
3. Interpreting Connector indications



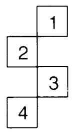
Removable connector



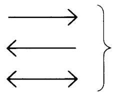
Wire soldered directly on board



Non-removable Board connector



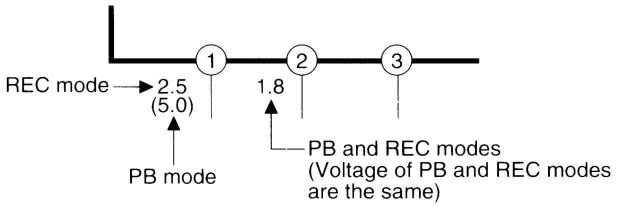
Board to Board



Connected pattern on board

4. Voltage measurement

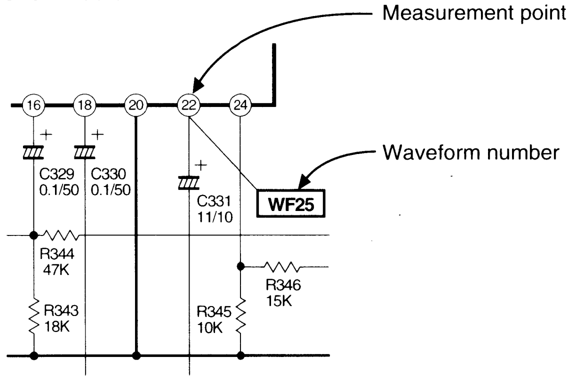
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.


①
②
③
REC mode
2.5
(5.0)
PB mode
1.8
PB and REC modes
(Voltage of PB and REC modes are the same)

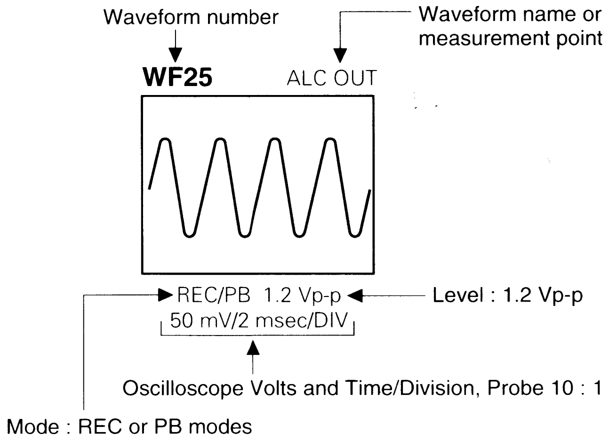
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.


Measurement point
Waveform number
16
18
20
22
24
C329
0.1/50
C330
0.1/50
C331
11/10
WF25
R344
47K
R343
18K
R345
10K
R346
15K

5) Waveform indications


Waveform number
Waveform name or measurement point
WF25
ALC OUT
REC/PB 1.2 Vp-p
Level : 1.2 Vp-p
50 mV/2 msec/DIV
Oscilloscope Volts and Time/Division, Probe 10 : 1
Mode : REC or PB modes

6. Signal path Symbols

The arrows indicate the signal path as follows.

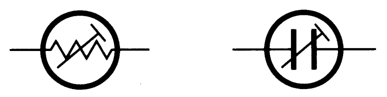
⇨	Playback signal path
▭▶	Playback and recording signal path
➡	Recording signal path (including E-E signal path)
⇨▷	Capstan servo path
➡▶	Drum servo path

(Example)

⇨ R-Y	Playback R-Y signal path
➡ Y	Recording Y signal path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

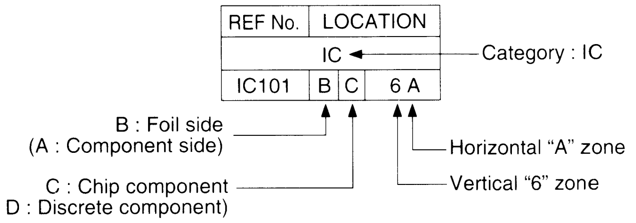
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

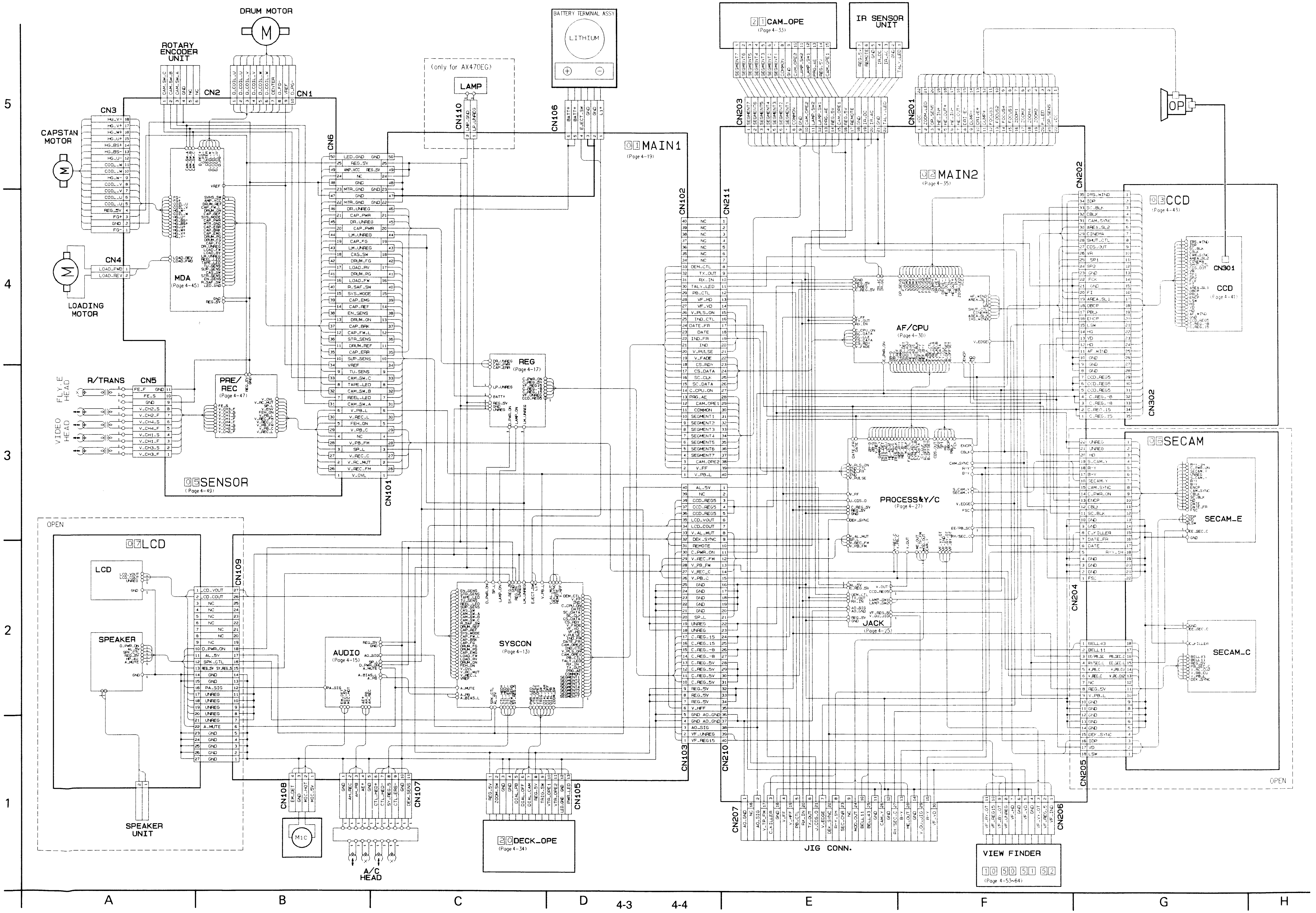
2. Parts location guides

Parts location are indicated by guide scale on the circuit board.

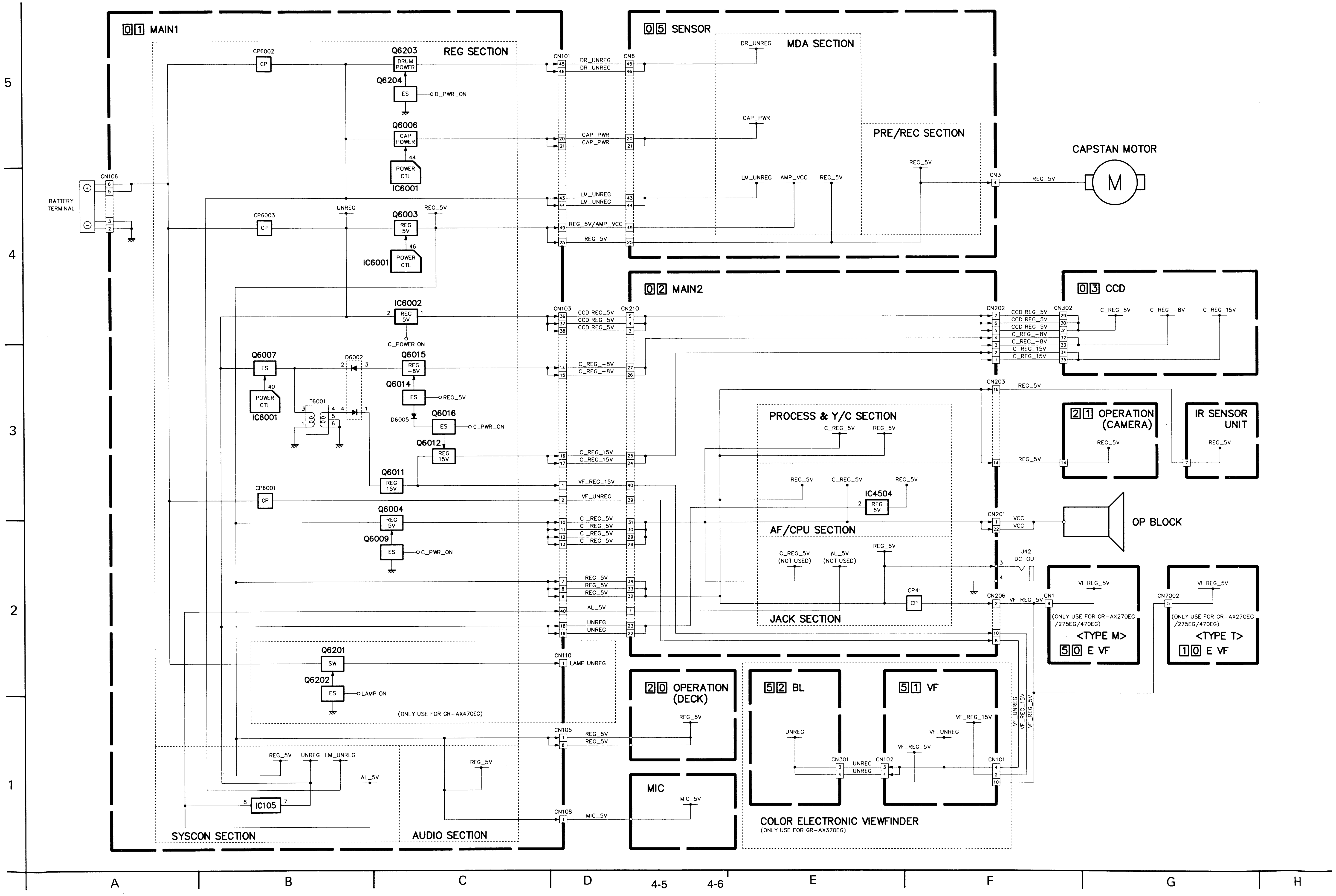

REF No.
LOCATION
IC
Category : IC
IC101
B
C
6 A
B : Foil side
(A : Component side)
C : Chip component
D : Discrete component)
Horizontal "A" zone
Vertical "6" zone

Note:
For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS

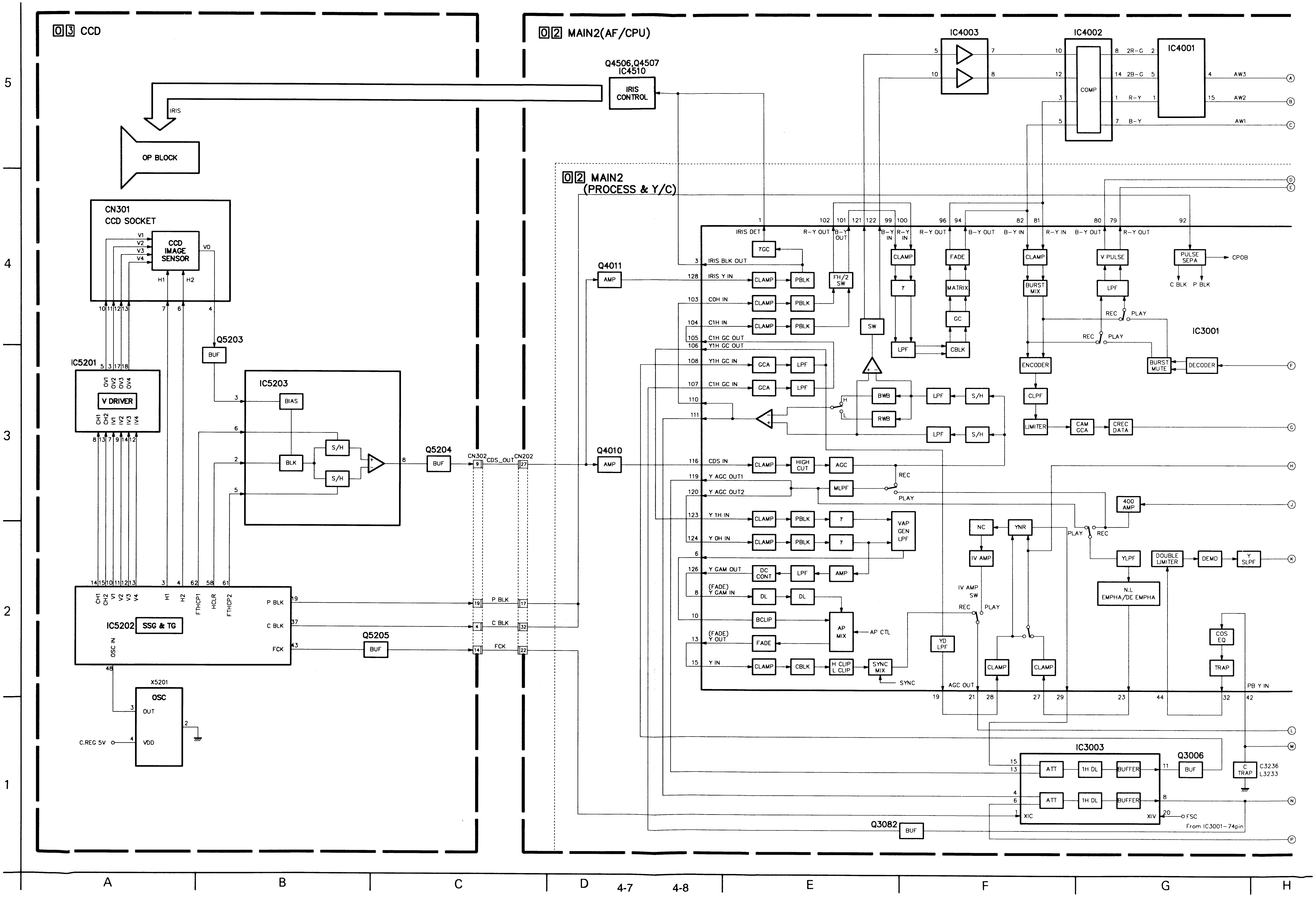

DRUM MOTOR
ROTARY ENCODER UNIT
CN2
CN1
CN3
CAPSTAN MOTOR
CN4
LOADING MOTOR
MDA
(Page 4-45)
(only for AX470EG)
LAMP
CN110
BATTERY TERMINAL ASSY
LITHIUM
CN106
CN6
01 MAIN1
(Page 4-19)
21 CAM_OPE
(Page 4-33)
IR SENSOR UNIT
CN203
CN201
02 MAIN2
(Page 4-35)
OP
CN202
03 CCD
(Page 4-43)
CCD
(Page 4-41)
CN301
CN302
CN102
CN211
AF/CPU
(Page 4-30)
R/TRANS
CN5
FLY.E HEAD
VIDEO HEAD
PRE/REC
(Page 4-47)
REG
(Page 4-17)
05 SENSOR
(Page 4-49)
CN101
05 SECAM
PROCESS&Y/C
(Page 4-27)
SECAM_E
SECAM_C
OPEN
07 LCD
LCD
SPEAKER
CN109
AUDIO
(Page 4-15)
SYSCON
(Page 4-13)
JACK
(Page 4-25)
CN204
CN205
CN103
CN210
SPEAKER UNIT
CN108
MIC
CN107
A/C HEAD
CN105
20 DECK_OPE
(Page 4-34)
CN207
JIG CONN.
CN206
VIEW FINDER
10 50 51 52
(Page 4-53~64)
1
2
3
4
5
A
B
C
D
E
F
G
H

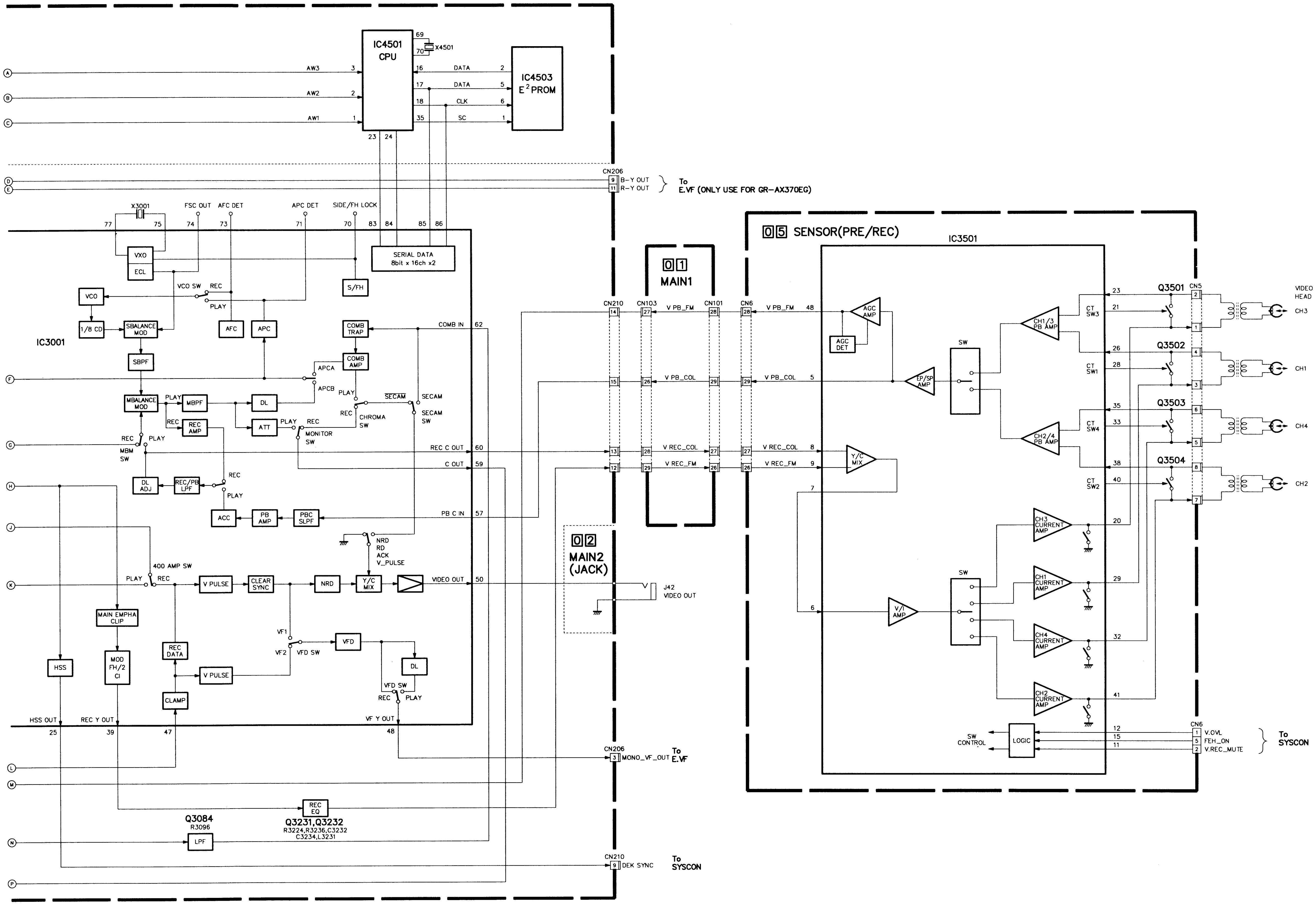
4.2 POWER SYSTEM BLOCK DIAGRAM



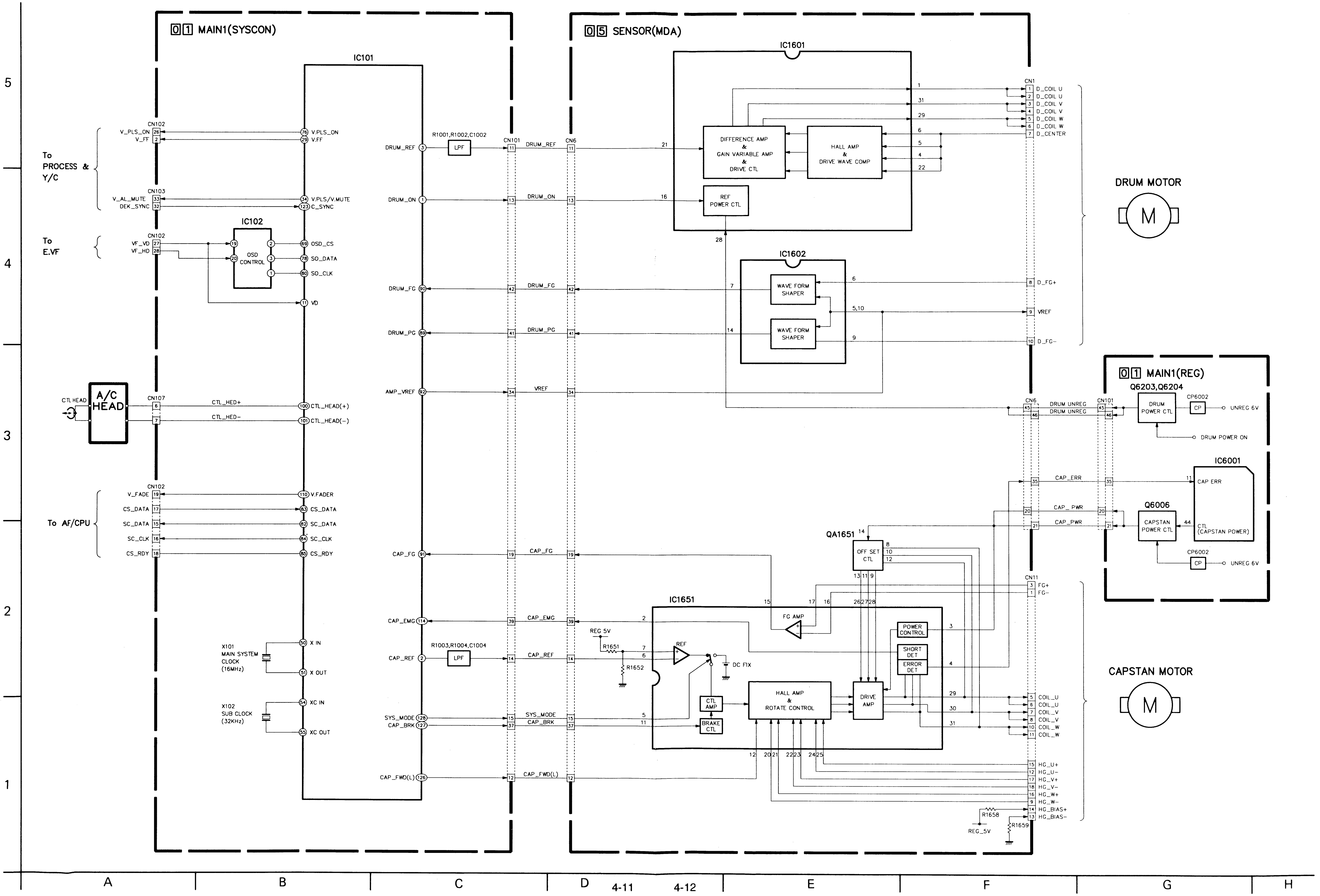
01 MAIN1
REG SECTION
CP6002
CP
Q6203
DRUM POWER
Q6204
ES
D_PWR_ON
Q6006
CAP POWER
44
POWER CTL
IC6001
CN106
BATTERY TERMINAL
UNREG
REG_5V
CP6003
Q6003
REG 5V
46
IC6001
IC6002
C_POWER ON
Q6007
D6002
Q6015
REG -8V
40
Q6014
T6001
D6005
Q6016
C_PWR_ON
Q6012
REG 15V
Q6011
CP6001
Q6004
Q6009
C_PWR_ON
Q6201
SW
Q6202
LAMP ON
(ONLY USE FOR GR-AX470EG)
IC105
AL_5V
LM_UNREG
SYSCON SECTION
AUDIO SECTION
CN101
DR_UNREG
CAP_PWR
LM_UNREG
REG_5V/AMP_VCC
CN103
CCD REG_5V
C_REG_-8V
C_REG_15V
VF_REG_15V
VF_UNREG
C _REG_5V
AL_5V
CN110
LAMP UNREG
CN105
CN108
MIC_5V
CN6
05 SENSOR
MDA SECTION
AMP_VCC
PRE/REC SECTION
CN3
CAPSTAN MOTOR
M
02 MAIN2
CN210
CN202
CN302
03 CCD
C_REG_5V
C_REG_-8V
C_REG_15V
CN203
PROCESS & Y/C SECTION
21 OPERATION (CAMERA)
IR SENSOR UNIT
IC4504
AF/CPU SECTION
CN201
VCC
OP BLOCK
C_REG_5V (NOT USED)
AL_5V (NOT USED)
J42
DC_OUT
CP41
JACK SECTION
CN206
VF_REG_5V
CN1
(ONLY USE FOR GR-AX270EG /275EG/470EG)
<TYPE M>
50 E VF
CN7002
<TYPE T>
10 E VF
20 OPERATION (DECK)
MIC
52 BL
51 VF
CN301
CN102
COLOR ELECTRONIC VIEWFINDER
(ONLY USE FOR GR-AX370EG)
A
B
C
D
E
F
G
H
1
2
3
4
5

4.3 Y/C AND PROCESS BLOCK DIAGRAM


03 CCD
02 MAIN2(AF/CPU)
02 MAIN2 (PROCESS & Y/C)
Q4506,Q4507 IC4510
IRIS CONTROL
IRIS
OP BLOCK
CN301 CCD SOCKET
CCD IMAGE SENSOR
V1 V2 V3 V4 VO H1 H2
IC5201
V DRIVER
OV1 OV2 OV3 OV4
CH1 CH2 IV1 IV2 IV3 IV4
Q5203
BUF
IC5203
BIAS
BLK
S/H
Q5204
CN302
CDS_OUT
CN202
P BLK
C BLK
FCK
Q5205
IC5202
SSG & TG
OSC IN
FTHCP1 HCLR FTHCP2
X5201
OSC
OUT
VDD
C.REG 5V
Q4011
AMP
Q4010
IC4003
IC4002
COMP
IC4001
2R−G
2B−G
R−Y
B−Y
AW3
AW2
AW1
IRIS DET
IRIS BLK OUT
IRIS Y IN
COH IN
C1H IN
C1H GC OUT
Y1H GC OUT
Y1H GC IN
C1H GC IN
CDS IN
Y AGC OUT1
Y AGC OUT2
Y 1H IN
Y 0H IN
Y GAM OUT
(FADE) Y GAM IN
(FADE) Y OUT
Y IN
R−Y OUT
B−Y OUT
B−Y IN
R−Y IN
TGC
CLAMP
PBLK
FH/2 SW
SW
γ
LPF
FADE
MATRIX
GC
CBLK
BURST MIX
ENCODER
CLPF
LIMITER
CAM GCA
CREC DATA
V PULSE
PULSE SEPA
CPOB
C BLK
P BLK
REC
PLAY
IC3001
BURST MUTE
DECODER
GCA
BWB
RWB
S/H
HIGH CUT
AGC
MLPF
400 AMP
VAP GEN LPF
NC
YNR
IV AMP
IV AMP SW
YLPF
DOUBLE LIMITER
DEMD
Y SLPF
N.L EMPHA/DE EMPHA
DC CONT
DL
BCLIP
AP MIX
AP CTL
H CLIP L CLIP
SYNC MIX
SYNC
YD LPF
AGC OUT
COS EQ
TRAP
PB Y IN
IC3003
ATT
1H DL
BUFFER
XIC
XIV
Q3006
C TRAP
C3236 L3233
FSC
From IC3001−74pin
Q3082
A B C D E F G H
1 2 3 4 5
A B C D E F G H J K L M N P

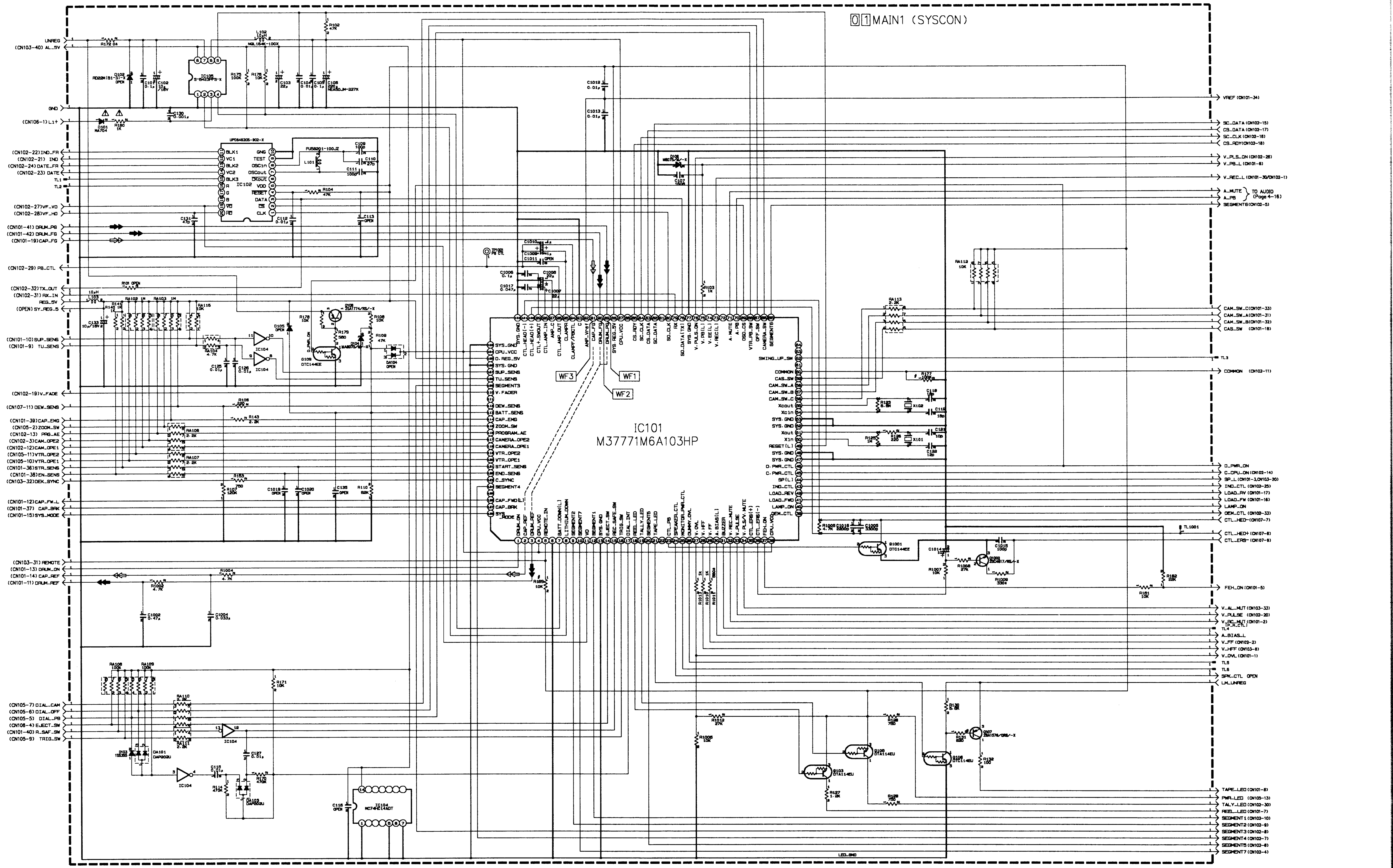

IC4501
CPU
69
70
X4501
AW3
AW2
AW1
3
2
1
16
17
18
35
23
24
DATA
DATA
CLK
SC
2
5
6
1
IC4503
E²PROM
A
B
C
D
E
CN206
9 B-Y OUT
11 R-Y OUT
To
E.VF (ONLY USE FOR GR-AX370EG)
X3001
77
75
FSC OUT
74
AFC DET
73
APC DET
71
SIDE/FH LOCK
70
83
84
85
86
VXO
ECL
SERIAL DATA
8bit x 16ch x2
S/FH
VCO
VCO SW
REC
PLAY
1/8 CD
SBALANCE MOD
AFC
APC
COMB TRAP
COMB IN
62
IC3001
SBPF
COMB AMP
F
APCA
APCB
PLAY
MBALANCE MOD
PLAY
MBPF
DL
SECAM
SECAM
REC
REC AMP
ATT
PLAY
REC
REC
CHROMA SW
SECAM SW
MONITOR SW
G
REC
PLAY
MBM SW
REC C OUT
60
C OUT
59
DL ADJ
REC/PB LPF
REC
PLAY
H
ACC
PB AMP
PBC SLPF
PB C IN
57
J
NRD
RD
ACK
V_PULSE
400 AMP SW
K
PLAY
REC
V PULSE
CLEAR SYNC
NRD
Y/C MIX
VIDEO OUT
50
MAIN EMPHA CLIP
VF1
VF2
VFD SW
VFD
DL
HSS
MOD FH/2 CI
REC DATA
V PULSE
CLAMP
VFD SW
REC
PLAY
HSS OUT
REC Y OUT
VF Y OUT
25
39
47
48
L
M
N
P
REC EQ
Q3084
R3096
LPF
Q3231,Q3232
R3224,R3236,C3232
C3234,L3231
CN206
3 MONO_VF_OUT
To
E.VF
CN210
9 DEK SYNC
To
SYSCON
CN210
14
15
13
12
02
MAIN2
(JACK)
J42
VIDEO OUT
01
MAIN1
CN103
27
26
28
29
V PB_FM
V PB_COL
V REC_COL
V REC_FM
CN101
28
29
27
26
CN6
28
29
27
26
05 SENSOR(PRE/REC)
IC3501
V PB_FM
48
V PB_COL
5
V REC_COL
8
V REC_FM
9
7
6
AGC AMP
AGC DET
EP/SP AMP
SW
Y/C MIX
CH1/3 PB AMP
CH2/4 PB AMP
CT SW3
CT SW1
CT SW4
CT SW2
23
21
26
28
35
33
38
40
Q3501
Q3502
Q3503
Q3504
CN5
2
1
4
3
6
5
8
7
VIDEO HEAD
CH3
CH1
CH4
CH2
V/I AMP
SW
CH3 CURRENT AMP
CH1 CURRENT AMP
CH4 CURRENT AMP
CH2 CURRENT AMP
20
29
32
41
SW CONTROL
LOGIC
12
15
11
CN6
1 V.OVL
5 FEH_ON
2 V.REC_MUTE
To
SYSCON

4.4 SYSCON/MDA BLOCK DIAGRAM



01 MAIN1(SYSCON)
IC101
CN102
V_PLS_ON 26
V_FF 2
76 V.PLS_ON
29 V.FF
To PROCESS & Y/C
CN103
V_AL_MUTE 33
DEK_SYNC 32
34 V.PLS/V.MUTE
123 C_SYNC
To E.VF
VF_VD 27
VF_HD 28
IC102
OSD CONTROL
69 OSD_CS
78 SO_DATA
80 SO_CLK
11 VD
CTL HEAD
A/C HEAD
CN107
CTL_HED+
CTL_HED-
100 CTL_HEAD(+)
101 CTL_HEAD(-)
To AF/CPU
V_FADE 19
CS_DATA 17
SC_DATA 15
SC_CLK 16
CS_RDY 18
110 V.FADER
83 CS_DATA
82 SC_DATA
84 SC_CLK
85 CS_RDY
X101 MAIN SYSTEM CLOCK (16MHz)
50 X IN
51 X OUT
X102 SUB CLOCK (32KHz)
54 XC IN
55 XC OUT
DRUM_REF 3
DRUM_ON 1
DRUM_FG 90
DRUM_PG 89
AMP_VREF 92
CAP_FG 91
CAP_EMG 114
CAP_REF 2
SYS_MODE 128
CAP_BRK 127
CAP_FWD(L) 126
R1001,R1002,C1002
R1003,R1004,C1004
LPF
CN101
CN6
DRUM_REF
DRUM_ON
DRUM_FG
DRUM_PG
VREF
CAP_FG
CAP_EMG
CAP_REF
SYS_MODE
CAP_BRK
CAP_FWD(L)
05 SENSOR(MDA)
IC1601
DIFFERENCE AMP & GAIN VARIABLE AMP & DRIVE CTL
HALL AMP & DRIVE WAVE COMP
REF POWER CTL
CN1
D_COIL U
D_COIL U
D_COIL V
D_COIL V
D_COIL W
D_COIL W
D_CENTER
IC1602
WAVE FORM SHAPER
WAVE FORM SHAPER
D_FG+
VREF
D_FG-
DRUM MOTOR
M
01 MAIN1(REG)
Q6203,Q6204
DRUM UNREG
DRUM UNREG
DRUM POWER CTL
CP6002
CP
UNREG 6V
DRUM POWER ON
IC6001
CAP ERR
CTL (CAPSTAN POWER)
Q6006
CAPSTAN POWER CTL
CP6002
UNREG 6V
CAP_ERR
CAP_PWR
CAP_PWR
QA1651
OFF SET CTL
CN11
FG+
FG-
IC1651
FG AMP
POWER CONTROL
SHORT DET
ERROR DET
REG 5V
R1651
R1652
REF
DC FIX
CTL AMP
BRAKE CTL
HALL AMP & ROTATE CONTROL
DRIVE AMP
COIL_U
COIL_U
COIL_V
COIL_V
COIL_W
COIL_W
HG_U+
HG_U-
HG_V+
HG_V-
HG_W+
HG_W-
HG_BIAS+
HG_BIAS-
R1658
R1659
REG_5V
CAPSTAN MOTOR
M
5
4
3
2
1
A
B
C
D
E
F
G
H

4.5 SYSCON SCHEMATIC DIAGRAM

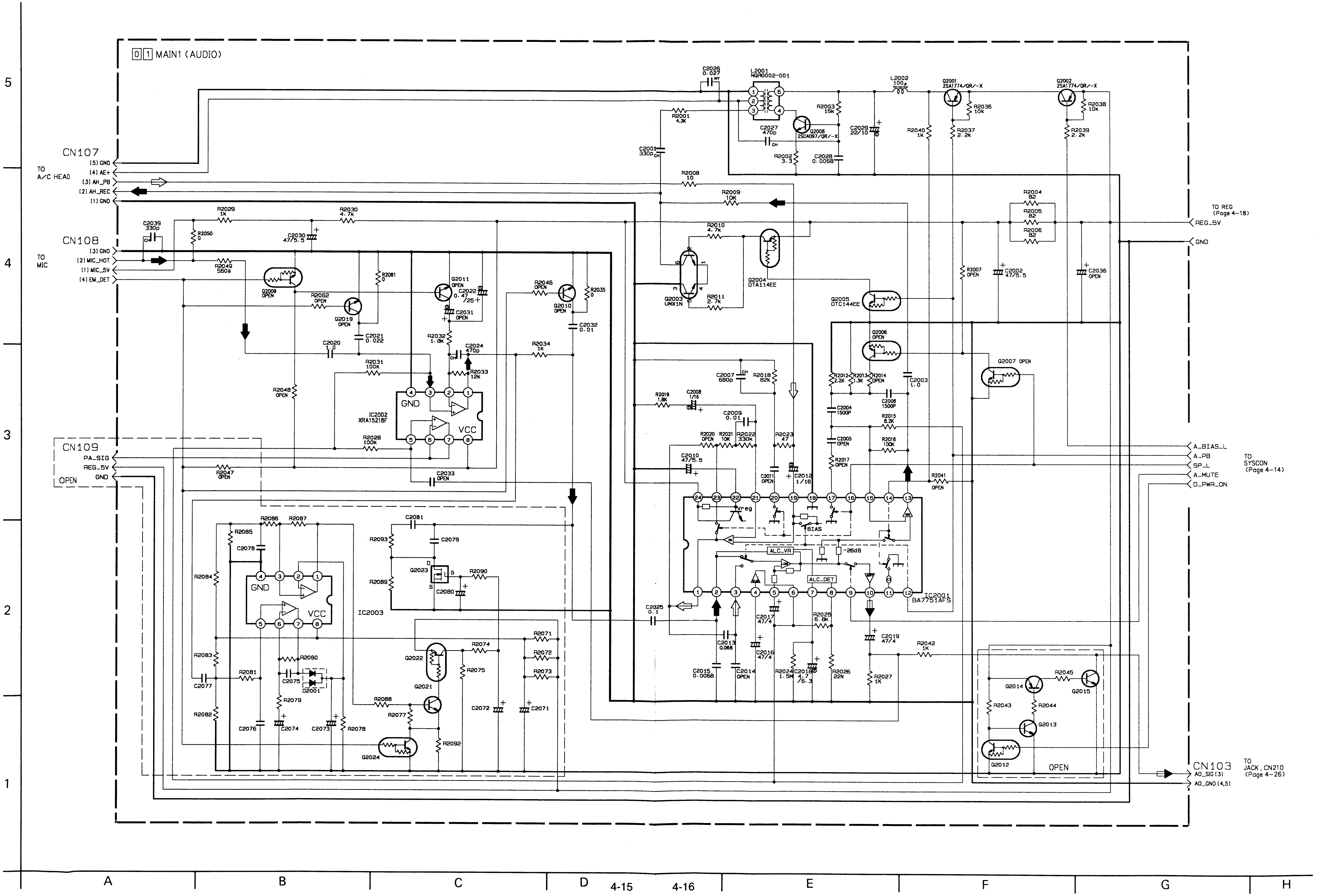


01 MAIN1 (SYSCON)
IC101
M37771M6A103HP
IC102 UPD6462GS-902-X
IC105 S-8423FFS-X
IC104 MC74HC14ADT
UNREG
(CN103-40) AL_5V
GND
(CN106-1) Li+
(CN102-22) IND_FR
(CN102-21) IND
(CN102-24) DATE_FR
(CN102-23) DATE
TL1
TL2
(CN102-27) VF_VD
(CN102-28) VF_HD
(CN101-41) DRUM_PG
(CN101-42) DRUM_FG
(CN101-19) CAP_FG
(CN102-29) PB_CTL
(CN102-32) TX_OUT
(CN102-31) RX_IN
REG_5V
(OPEN) SY_REG_5
(CN101-10) SUP_SENS
(CN101-9) TU_SENS
(CN102-19) V_FADE
(CN107-11) DEW_SENS
(CN101-39) CAP_EMG
(CN105-2) ZOOM_SW
(CN102-13) PRG_AE
(CN102-3) CAM_OPE2
(CN102-12) CAM_OPE1
(CN105-11) VTR_OPE2
(CN105-10) VTR_OPE1
(CN101-36) STR_SENS
(CN101-38) EN_SENS
(CN103-32) DEK_SYNC
(CN101-12) CAP_FW_L
(CN101-37) CAP_BRK
(CN101-15) SYS_MODE
(CN103-31) REMOTE
(CN101-13) DRUM_ON
(CN101-14) CAP_REF
(CN101-11) DRUM_REF
(CN105-7) DIAL_CAM
(CN105-6) DIAL_OFF
(CN105-5) DIAL_PB
(CN106-4) EJECT_SW
(CN101-40) R_SAF_SW
(CN105-9) TRIG_SW
VREF (CN101-34)
SC_DATA (CN102-15)
CS_DATA (CN102-17)
SC_CLK (CN102-16)
CS_RDY (CN102-18)
V_PLS_ON (CN102-26)
V_PB_L (CN101-6)
V_REC_L (CN101-30/CN102-1)
A_MUTE
A_PB
TO AUDIO (Page 4-16)
SEGMENT6 (CN102-5)
CAM_SW_C (CN101-33)
CAM_SW_A (CN101-31)
CAM_SW_B (CN101-32)
CAS_SW (CN101-18)
TL3
COMMON (CN102-11)
D_PWR_ON
C_CPU_ON (CN102-14)
SP_L (CN101-3, CN103-20)
IND_CTL (CN102-25)
LOAD_RV (CN101-17)
LOAD_FW (CN101-16)
LAMP_ON
DEM_CTL (CN102-33)
CTL_HED- (CN107-7)
TL1001
CTL_HED+ (CN107-8)
CTL_ERS- (CN107-9)
FEH_ON (CN101-5)
V_AL_MUT (CN103-33)
V_PULSE (CN102-20)
V_RC_MUT (CN101-2)
(P_R_CTL)
TL4
A_BIAS_L
V_FF (CN102-2)
V_HFF (CN103-8)
V_DVL (CN101-1)
TL5
TL6
SPK_CTL OPEN
LM_UNREG
TAPE_LED (CN101-8)
PWR_LED (CN105-13)
TALY_LED (CN102-30)
REEL_LED (CN101-7)
SEGMENT1 (CN102-10)
SEGMENT2 (CN102-9)
SEGMENT3 (CN102-8)
SEGMENT4 (CN102-7)
SEGMENT5 (CN102-6)
SEGMENT7 (CN102-4)
WF1
WF2
WF3
LED_GND
5
4
3
2
1
A
B
C
D
E
F
G
H

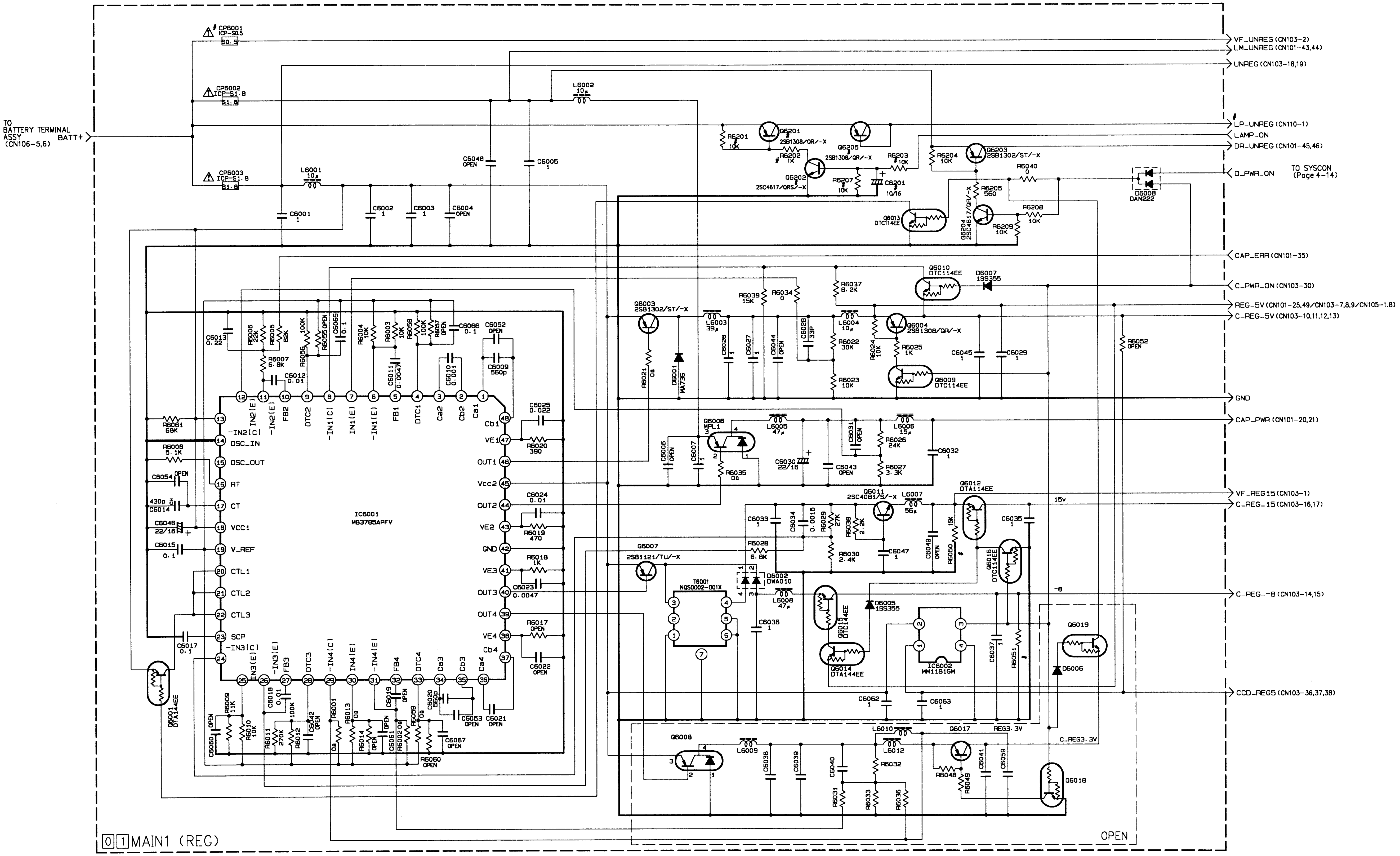
NOTES: 1. COMPARISON CHART OF MODELS & MARKS (#) 2. For SYSCON waveforms, please refer to page 4-52.

REF. No.	MODELS		
	AX270EG/AX370EG	AX275EG	AX470EG
R169	USED	OPEN	OPEN
R177	OPEN	OPEN	USED

4.6 AUDIO SCHEMATIC DIAGRAM


0 1 MAIN1 (AUDIO)
CN107
[5] GND
[4] AE+
[3] AH_PB
[2] AH_REC
[1] GND
TO A/C HEAD
CN108
[3] GND
[2] MIC_HOT
[1] MIC_5V
[4] EM_DET
TO MIC
CN109
PA_SIG
REG_5V
GND
OPEN
C2026 0.027
L2001 NQR0002-001
L2002 100μ
Q2001 2SA1774/QR/-X
Q2002 2SA1774/QR/-X
R2036 10k
R2038 10k
R2037 2.2K
R2039 2.2K
R2040 1K
R2003 15K
R2001 4.3K
C2027 470p
Q2008 2SC4097/QR/-X
C2029 22/10
C2001 330p
R2002 3.3
C2028 0.0068
R2008 10
R2009 10K
R2004 82
R2005 82
R2006 82
TO REG (Page 4-18)
REG_5V
GND
R2029 1k
R2030 4.7k
C2039 330p
R2050 0
C2030 47/5.5
R2049 560a
Q2009 OPEN
R2081 0
Q2011 OPEN
C2022 0.47/25
C2031 OPEN
R2052 OPEN
Q2019 OPEN
C2021 0.022
C2020 1.0
R2046 OPEN
Q2010 OPEN
R2035 0
C2032 0.01
R2010 4.7k
Q2004 DTA114EE
Q2003 UMX1N
R2011 2.7k
Q2005 DTC144EE
R2007 OPEN
C2002 47/5.5
C2036 OPEN
Q2006 OPEN
Q2007 OPEN
R2032 1.8K
C2024 470p
R2033 12K
R2034 1K
R2031 100K
R2048 OPEN
IC2002 XRA15218F
GND
VCC
R2028 100K
C2033 OPEN
R2047 OPEN
C2007 680p
R2018 82K
R2019 1.8K
C2008 1/16
C2009 0.01
R2020 OPEN
R2021 10K
R2022 330K
R2023 47
C2010 47/5.5
C2011 OPEN
C2012 1/16
R2012 2.2K
R2013 1.5K
R2014 OPEN
C2003 1.0
C2004 1500P
C2006 1500P
R2015 8.2K
C2005 OPEN
R2016 100K
R2017 OPEN
R2041 OPEN
A_BIAS_L
A_PB
SP_L
A_MUTE
D_PWR_ON
TO SYSCON (Page 4-14)
Vreg
BIAS
ALC_VR
-26dB
ALC_DET
IC2001 BA7751AFS
R2086
R2087
R2085
C2078
C2081
C2079
R2093
Q2023
R2090
R2089
C2080
R2084
IC2003
C2025 0.1
C2013 0.068
C2017 47/4
C2016 47/4
R2025 6.8K
C2019 47/4
R2042 1K
R2071
R2072
R2073
R2074
R2075
Q2022
Q2021
R2083
R2080
C2075
D2001
R2081
C2077
R2079
R2088
R2077
C2072
C2071
R2082
C2076
C2074
C2073
R2078
R2092
Q2024
C2015 0.0068
C2014 OPEN
R2024 1.5M
C2018 4.7/6.3
R2026 22K
R2027 1K
Q2014
R2045
Q2015
R2043
R2044
Q2013
Q2012
OPEN
CN103
AO_SIG [3]
AO_GND [4,5]
TO JACK, CN210 (Page 4-26)
5
4
3
2
1
A
B
C
D
E
F
G
H

4.7 REGULATOR SCHEMATIC DIAGRAM



TO BATTERY TERMINAL ASSY (CN106-5,6)
BATT+
CP6001 ICP-S0.5
CP6002 ICP-S1.8
CP6003 ICP-S1.8
L6001 10μ
L6002 10μ
C6001 1
C6002 1
C6003 1
C6004 OPEN
C6048 OPEN
C6005 1
VF_UNREG (CN103-2)
LM_UNREG (CN101-43,44)
UNREG (CN103-18,19)
LP_UNREG (CN110-1)
LAMP_ON
DR_UNREG (CN101-45,46)
D_PWR_ON
TO SYSCON (Page 4-14)
D6008 DAN222
CAP_ERR (CN101-35)
C_PWR_ON (CN103-30)
REG_5V (CN101-25,49/CN103-7,8,9/CN105-1.8)
C_REG_5V (CN103-10,11,12,13)
GND
CAP_PWR (CN101-20,21)
VF_REG15 (CN103-1)
C_REG_15 (CN103-16,17)
C_REG_-8 (CN103-14,15)
CCD_REG5 (CN103-36,37,38)
Q6201 2SB1308/QR/-X
Q6202 2SC4617/QRS/-X
Q6205 2SB1308/QR/-X
Q6203 2SB1302/ST/-X
Q6204 2SC4617/QR/-X
Q6013 DTC114EE
Q6010 DTC114EE
D6007 1SS355
Q6003 2SB1302/ST/-X
D6001 MA736
Q6004 2SB1308/QR/-X
Q6009 DTC114EE
Q6006 MPL1
L6005 47μ
L6006 15μ
Q6011 2SC4081/S/-X
L6007 56μ
Q6012 DTA114EE
Q6016 DTC114EE
Q6007 2SB1121/TU/-X
T6001 NQS0002-001X
D6002 DWA010
L6008 47μ
D6005 1SS355
Q6015 DTC114EE
Q6014 DTA144EE
IC6002 MM1181GM
Q6019
D6006
Q6008
L6009
L6010
L6012
Q6017
Q6018
REG3.3V
C_REG3.3V
IC6001 MB3785APFV
Q6001 DTA144EE
OPEN
01 MAIN1 (REG)

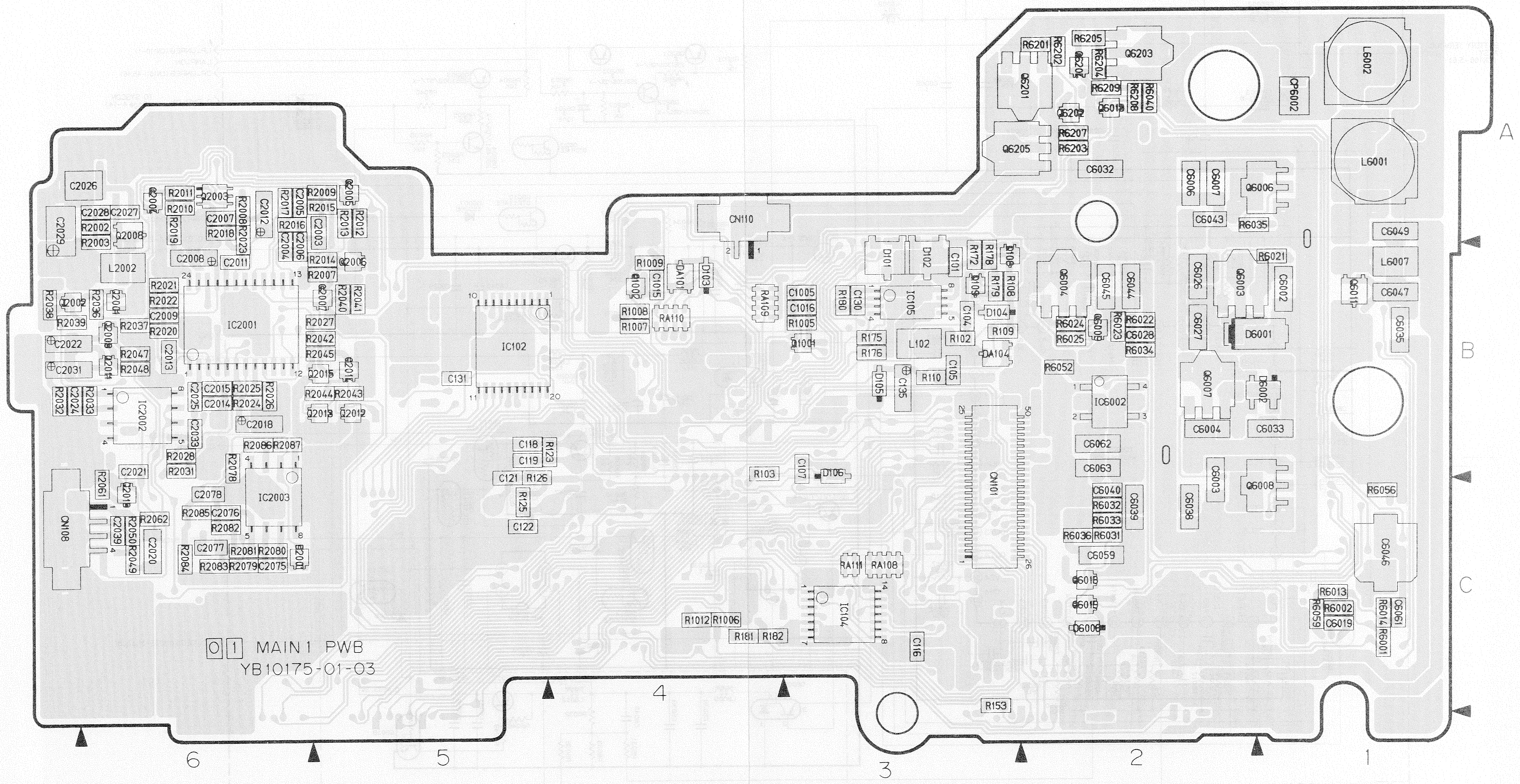
NOTE: COMPARISON CHART OF MODELS & MARKS (#).

REF.NO.	MODELS		
	AX270EG/AX275EG	AX370EG	AX470EG
Q6201	OPEN	OPEN	USED
Q6202	OPEN	OPEN	USED
Q6205	OPEN	OPEN	USED
R6201	OPEN	OPEN	USED
R6202	OPEN	OPEN	USED
R6203	OPEN	OPEN	USED
R6207	OPEN	OPEN	USED
R6050	USED	OPEN	USED
R6051	10K	1.5K	10K
C6201	OPEN	OPEN	USED
CP6001	OPEN	USED	OPEN
CN110	OPEN	OPEN	USED

A B C D E F G H

4.8 MAIN 1 CIRCUIT BOARD

-FOIL SIDE (B)-


A
B
C
1
2
3
4
5
6
MAIN 1 PWB
YB10175-01-03
0 1
R6201
R6202
R6205
Q6203
R6204
Q6201
R6209
R6208
R6040
Q6202
Q6013
R6207
R6203
Q6205
C6032
L6002
CP6002
L6001
C6006
C6007
Q6006
C6043
R6035
C6049
L6007
C6047
C6035
Q6011
C6026
Q6003
R6021
C6002
C6027
D6001
Q6007
D6002
C6004
C6033
Q6008
C6003
C6038
R6056
C6046
R6013
R6059
R6002
C6019
R6014
R6001
C6061
Q6004
C6045
C6044
R6024
R6025
Q6009
R6023
R6022
C6028
R6034
R6052
IC6002
C6062
C6063
C6040
R6032
R6033
R6036
R6031
C6039
C6059
Q6016
Q6015
D6008
CN110
D101
D102
C101
R172
R178
D108
R1009
DA101
D103
Q1002
C1015
R1008
R1007
RA110
RA109
C1005
C1016
R1005
D1001
R180
C130
IC105
D109
R179
R108
C104
D104
R109
DA104
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R176
L102
R102
D105
C135
R110
C105
CN101
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D106
RA111
RA108
IC104
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L2002
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R2010
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C2007
R2018
R2008
R2023
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C2011
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C2016
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R2015
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C2006
R2013
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Q2006
R2021
R2022
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Q2002
R2038
Q2002
R2036
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Q2009
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Q2011
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C2013
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R2045
Q2015
Q2014
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R2043
Q2013
Q2012
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R2033
IC2002
C2025
C2015
R2025
R2026
C2014
R2024
C2033
C2018
R2086
R2087
R2028
R2031
R2078
C2021
R2061
Q2019
IC2003
C2078
R2085
C2076
R2082
R2062
CN108
C2039
R2050
R2049
C2020
R2084
C2077
R2081
R2080
Q2010
R2083
R2079
C2075

COMPONENT PARTS LOCATION GUIDE <MAIN1>

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C110	A	C	5B
C111	A	C	5B
C112	A	C	5B
C113	A	C	5B
C115	A	C	3C
C116	B	C	3C
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C119	B	C	5B
C121	B	C	5B
C122	B	C	5C
C125	A	C	3C
C126	A	C	3C
C127	A	C	4C
C130	B	C	3B
C131	B	C	5B
C133	A	C	3C
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C1002	A	C	3C
C1004	A	C	3C
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C1012	A	C	4B
C1013	A	C	4B
C1014	A	C	4B
C1015	B	C	4B
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C1017	A	C	3B
C1019	A	C	3C
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C6065	A	C	6B
C6066	A	C	6B
C6067	A	C	6B
C6201	A	C	6B
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CN103	A	C	6B
CN105	A	C	6B
CN106	A	C	6B
CN107	A	C	6B
CN108	B	C	6B
CN109	A	C	6B
CN110	B	C	6B
CIRCUIT PROTECTOR			
CP6001	A	C	6B
CP6002	B	C	6B
CP6003	A	C	6B
DIODE			
D101	B	C	6B
D102	B	C	6B
D103	B	C	6B
D104	B	C	6B
D105	B	C	6B
D106	B	C	6B
D2001	B	C	6B
D6001	B	C	6B
D6002	B	C	6B
D6005	A	C	6B
D6006	B	C	6B
D6007	A	C	6B
D6008	A	C	6B
DA101	B	C	6B
DA103	A	C	6B
DA104	B	C	6B
IC			
IC101	A	C	6B
IC102	B	C	6B
IC104	B	C	6B
IC105	B	C	6B
IC2001	B	C	6B
IC2002	B	C	6B
IC2003	B	C	6B
IC6001	A	C	6B
IC6002	B	C	6B
COIL			
L101	A	C	6B
L102	B	C	6B
L103	A	C	6B
L2001	A	C	6B
L2002	B	C	6B
L6001	B	C	6B
L6002	B	C	6B
L6003	A	C	6B
L6004	A	C	6B
L6005	A	C	6B
L6006	A	C	6B
L6007	B	C	6B
L6008	A	C	6B
L6009	A	C	6B
L6010	A	C	6B
L6012	A	C	6B
TRANSISTOR			
Q103	A	C	6B
Q105	A	C	6B
Q106	A	C	6B
Q107	A	C	6B
Q108	B	C	6B
Q109	B	C	6B
Q1001	B	C	6B
Q1002	B	C	6B
Q2001	B	C	6B
Q2002	B	C	6B
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Q6003	B	C	6B
Q6004	B	C	6B
Q6006	B	C	6B
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Q6202	B	C	6B
Q6203	B	C	6B
Q6204	B	C	6B
Q6205	B	C	6B
RESISTOR			
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R103	B	C	6B
R104	A	C	6B
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R107	A	C	6B
R108	B	C	6B
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R143	A	C	6B
R153	B	C	6B
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R2027	B	C	6B
R2028	B	C	6B
R2029	A	C	6B
R2030	A	C	6B
R2031	B	C	6B
R2032	B	C	6B

REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION		
R2033	B	C	6B	R6021	B	C	1B	**TEST POINT**			
R2034	A	C	6B	R6022	B	C	2B	TP1001	A	C	4B
R2035	A	C	6B	R6023	B	C	2B				
R2036	B	C	6B	R6024	B	C	2B				
R2037	B	C	6B	R6025	B	C	2B				
R2038	B	C	6B	R6026	A	C	2A				
R2039	B	C	6B	R6027	A	C	2A	**OTHER**			
R2040	B	C	5B	R6028	A	C	1B	T6001	A	C	2B
R2041	B	C	5B	R6029	A	C	1B	X101	A	D	5C
R2042	B	C	5B	R6030	A	C	1B	X102	A	D	4B
R2043	B	C	5B	R6031	B	C	2C				
R2044	B	C	5B	R6032	B	C	2C				
R2045	B	C	5B	R6033	B	C	2C				
R2046	A	C	6B	R6034	B	C	2B				
R2047	B	C	6B	R6035	B	C	2A				
R2048	B	C	6B	R6036	B	C	2C				
R2049	B	C	6C	R6037	A	C	2B				
R2050	B	C	6C	R6038	A	C	1B				
R2061	B	C	6B	R6039	A	C	2B				
R2062	B	C	6C	R6040	B	C	2A				
R2071	A	C	5B	R6048	A	C	2C				
R2072	A	C	5B	R6049	A	C	2C				
R2073	A	C	6B	R6050	A	C	1B				
R2074	A	C	6B	R6051	A	C	2B				
R2075	A	C	6B	R6052	B	C	2B				
R2077	A	C	6B	R6055	A	C	1C				
R2078	B	C	6B	R6056	B	C	1C				
R2079	B	C	6C	R6057	A	C	1B				
R2080	B	C	6C	R6058	A	C	1B				
R2081	B	C	6C	R6059	B	C	1C				
R2082	B	C	6C	R6060	A	C	1C				
R2083	B	C	6C	R6061	A	C	1C				
R2084	B	C	6C	R6201	B	C	2A				
R2085	B	C	6C	R6202	B	C	2A				
R2086	B	C	6B	R6203	B	C	2A				
R2087	B	C	6B	R6204	B	C	2A				
R2088	A	C	6B	R6205	B	C	2A				
R2089	A	C	6B	R6207	B	C	2A				
R2090	A	C	6B	R6208	B	C	2A				
R2092	A	C	6B	R6209	B	C	2A				
R2093	A	C	6B	RA102	A	C	3C				
R6001	B	C	1C	RA103	A	C	3B				
R6002	B	C	1C	RA104	A	C	3C				
R6003	A	C	1B	RA106	A	C	3B				
R6004	A	C	1B	RA107	A	C	3C				
R6005	A	C	1C	RA108	B	C	3C				
R6006	A	C	1B	RA109	B	C	4B				
R6007	A	C	1C	RA110	B	C	4B				
R6008	A	C	1C	RA111	B	C	3C				
R6009	A	C	1C	RA112	A	C	5B				
R6010	A	C	1C	RA113	A	C	4B				
R6011	A	C	1C	RA116	A	C	3C				
R6012	A	C	1C								
R6013	B	C	1C								
R6014	B	C	1C								
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R6018	A	C	2C								
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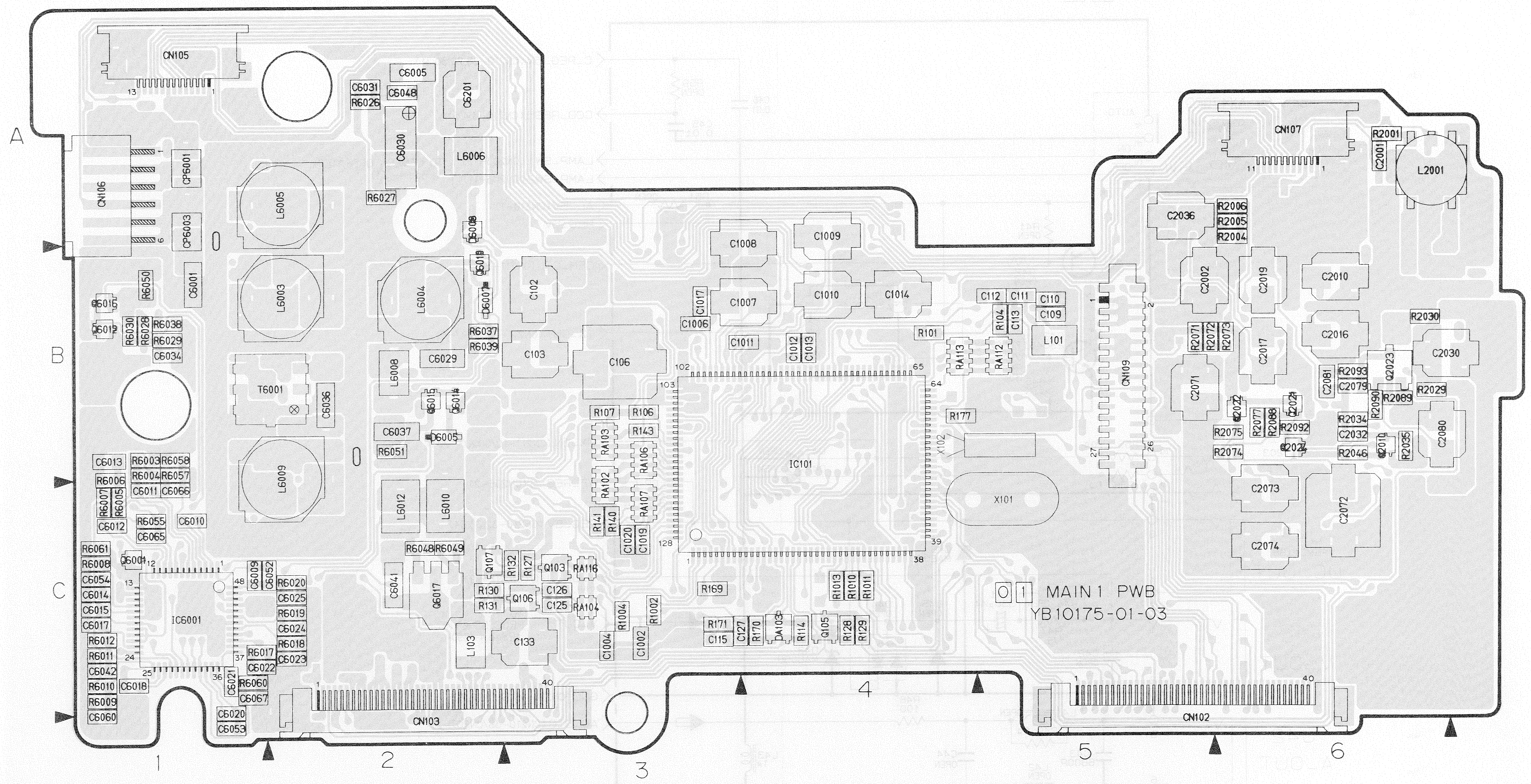
–COMPONENT SIDE (A)–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CN102
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X101
X102
T6001
L6005
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C127
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DA103
R114
Q105
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C2017
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Q2023
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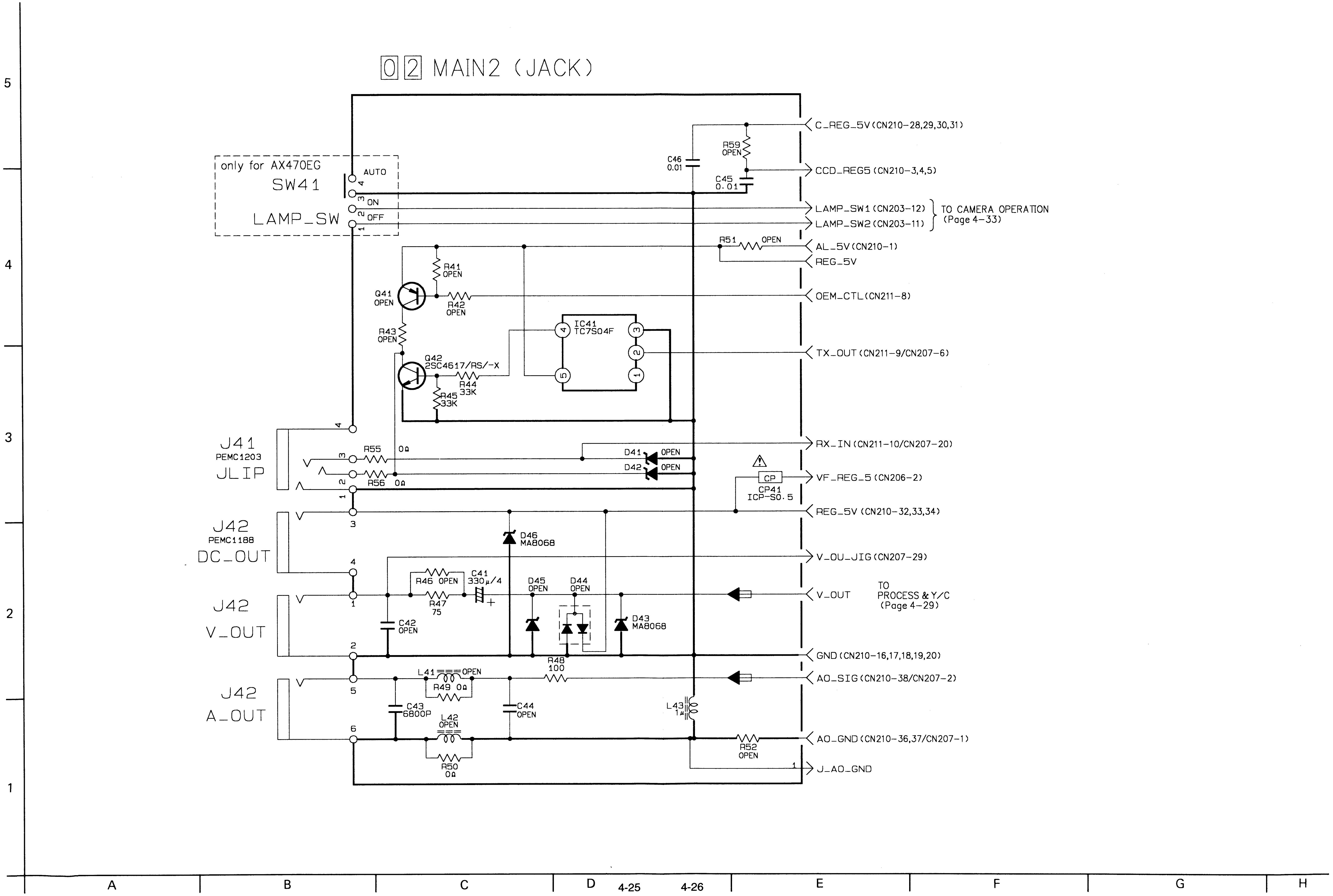
YB10175-01-03

4.9 JACK SCHEMATIC DIAGRAM



02 MAIN2 (JACK)
only for AX470EG
SW41
LAMP_SW
AUTO
ON
OFF
C46 0.01
R59 OPEN
C45 0.01
R51 OPEN
R41 OPEN
Q41 OPEN
R42 OPEN
R43 OPEN
Q42 2SC4617/RS/-X
R44 33K
R45 33K
IC41 TC7S04F
J41 PEMC1203 JLIP
R55 0Ω
R56 0Ω
D41 OPEN
D42 OPEN
CP
CP41 ICP-S0.5
J42 PEMC1188 DC_OUT
D46 MA8068
J42 V_OUT
R46 OPEN
C41 330μ/4
R47 75
C42 OPEN
D45 OPEN
D44 OPEN
D43 MA8068
R48 100
J42 A_OUT
L41 OPEN
R49 0Ω
C43 6800P
L42 OPEN
C44 OPEN
R50 0Ω
L43 1μ
R52 OPEN
C_REG_5V (CN210-28,29,30,31)
CCD_REG5 (CN210-3,4,5)
LAMP_SW1 (CN203-12)
LAMP_SW2 (CN203-11)
TO CAMERA OPERATION (Page 4-33)
AL_5V (CN210-1)
REG_5V
OEM_CTL (CN211-8)
TX_OUT (CN211-9/CN207-6)
RX_IN (CN211-10/CN207-20)
VF_REG_5 (CN206-2)
REG_5V (CN210-32,33,34)
V_OU_JIG (CN207-29)
V_OUT
TO PROCESS & Y/C (Page 4-29)
GND (CN210-16,17,18,19,20)
AO_SIG (CN210-38/CN207-2)
AO_GND (CN210-36,37/CN207-1)
J_AO_GND
5
4
3
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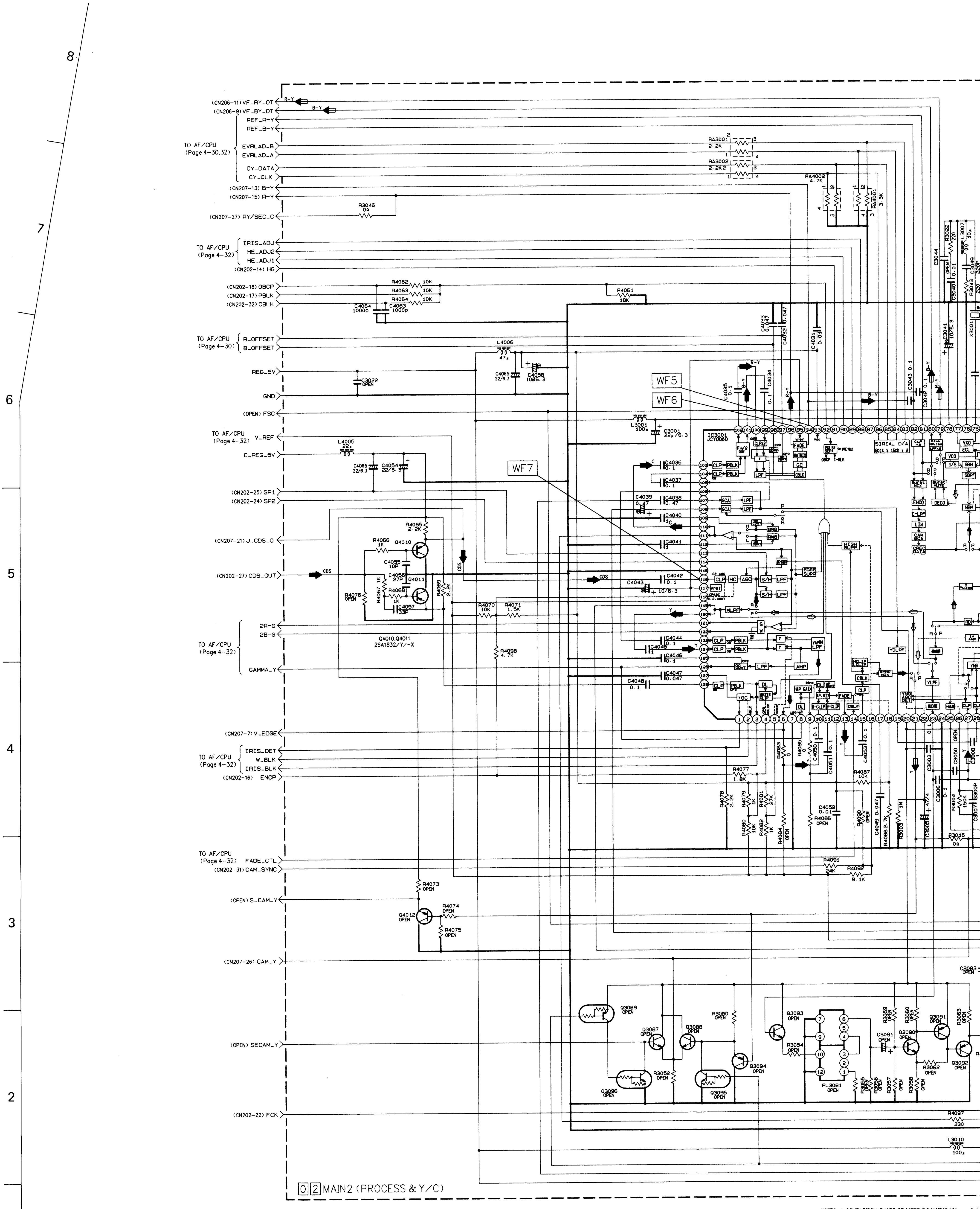
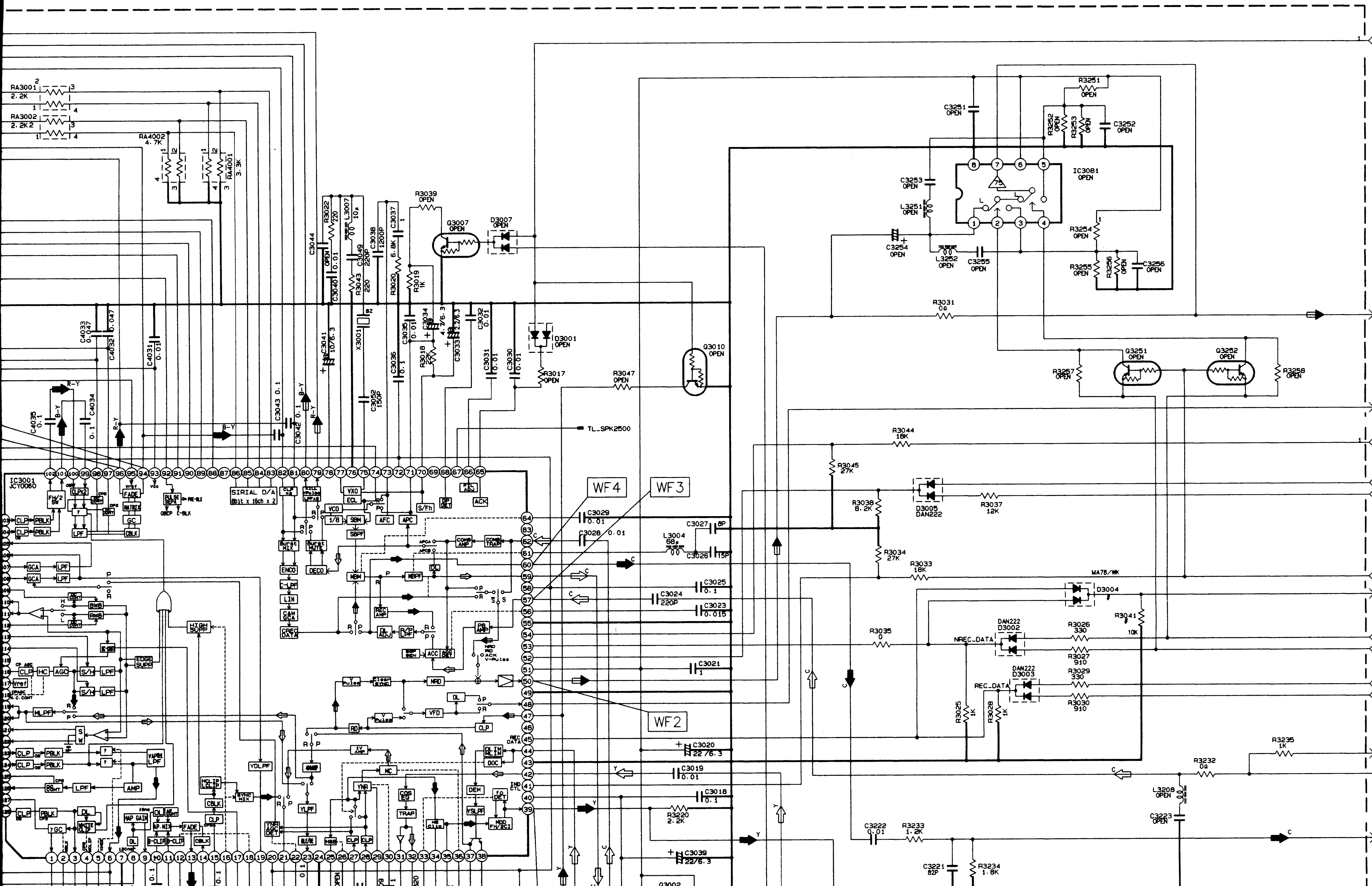
A
B
C
D
E
F
G
H

4.10 PROCESS AND Y/C SCHEMATIC DIAGRAM


8
7
6
5
4
3
2
1
(CN206-11) VF_RY_OT
(CN206-9) VF_BY_OT
REF_R-Y
REF_B-Y
TO AF/CPU (Page 4-30,32)
EVRLAD_B
EVRLAD_A
CY_DATA
CY_CLK
(CN207-13) B-Y
(CN207-15) R-Y
(CN207-27) RY/SEC_C
TO AF/CPU (Page 4-32)
IRIS_ADJ
HE_ADJ2
HE_ADJ1
(CN202-14) HG
(CN202-18) OBCP
(CN202-17) PBLK
(CN202-32) CBLK
TO AF/CPU (Page 4-30)
R_OFFSET
B_OFFSET
REG_5V
GND
(OPEN) FSC
TO AF/CPU (Page 4-32)
V_REF
C_REG_5V
(CN202-25) SP1
(CN202-24) SP2
(CN207-21) J_CDS_O
(CN202-27) CDS_OUT
TO AF/CPU (Page 4-32)
2A-G
2B-G
GAMMA_Y
(CN207-7) V_EDGE
TO AF/CPU (Page 4-32)
IRIS_DET
W_BLK
IRIS_BLK
(CN202-16) ENCP
TO AF/CPU (Page 4-32)
FADE_CTL
(CN202-31) CAM_SYNC
(OPEN) S_CAM_Y
(CN207-26) CAM_Y
(OPEN) SECAM_Y
(CN202-22) FCK
WF5
WF6
WF7
IC3001 JCY0060
RA3001 2.2K
RA3002 2.2K2
RA4002 4.7K
RA4001 3.3K
R3046 0Ω
R4062 10K
R4063 10K
R4064 10K
C4064 1000p
C4063 1000p
R4061 18K
L4006 47μ
C4065 22/6.3
C4058 10/6.3
C3022 OPEN
L3001 100μ
C3001 22μ/6.3
L4005 22μ
C4065 22/6.3
C4054 22/6.3
R4065 2.2K
R4066 1K
Q4010
C4055 10P
C4056 27P
Q4011
R4067 1K
R4068 1K
C4057 33P
R4069 2.2K
R4076 OPEN
Q4010,Q4011 2SA1832/Y/-X
R4070 10K
R4071 1.5K
R4098 4.7K
C4033 0.047
C4032 0.047
C4031 0.01
C4035 0.1
C4034 0.1
C4036 0.1
C4037 0.1
C4039 0.47
C4038 0.47
C4040 1
C4041
C4042 0.1
C4043 10/6.3
C4045 1
C4044 0.1
C4046 0.1
C4047 0.047
C4048 0.1
SIRIAL D/A 8bit x 16ch x 2
R4077 1.8K
R4078 2.2K
R4079 1K
R4081 27K
R4080 10K
R4082 1K
R4083 0
R4084 OPEN
R4085 0
C4050 0.1
C4051 0.1
C4053 0.1
C4052 0.01
R4086 OPEN
R4087 10K
R4090 OPEN
C4049 0.047
R4088 2.7K
R3003 1M
C3005 47/4
R3016 0Ω
R4091 24K
R4092 9.1K
R4073 OPEN
Q4012 OPEN
R4074 OPEN
R4075 OPEN
Q3089 OPEN
Q3087 OPEN
Q3088 OPEN
R3050 OPEN
Q3093 OPEN
R3054 OPEN
FL3081 OPEN
Q3094 OPEN
Q3095 OPEN
Q3096 OPEN
R3052 OPEN
C3091 OPEN
Q3090 OPEN
Q3091 OPEN
Q3092 OPEN
R3062 OPEN
R4097 330
L3010 100μ
02 MAIN2 (PROCESS & Y/C)
A
B
C
D
E

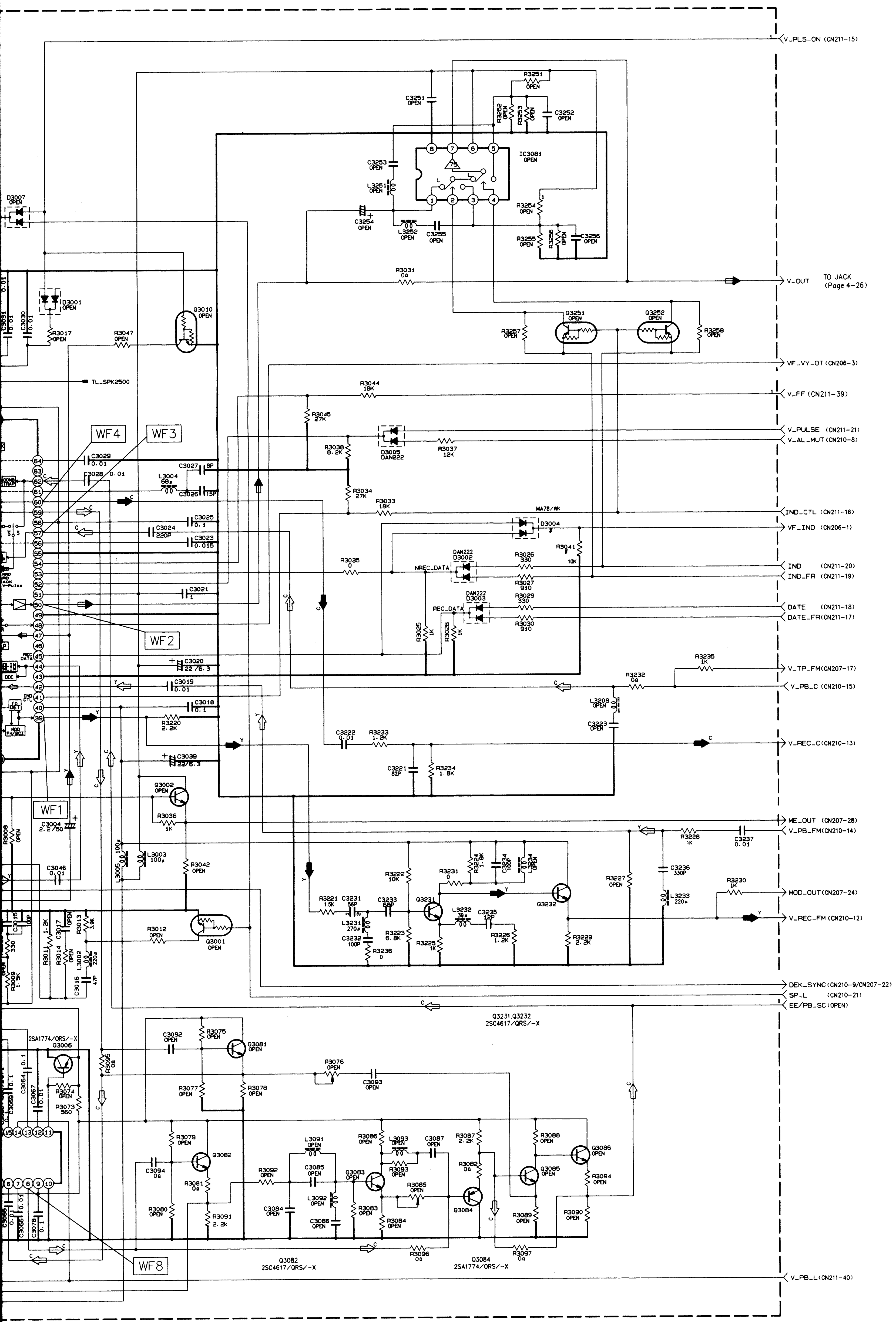
NOTES : 1. COMPARISON CHART OF MODELS & MARKS (♯).   2. F

REF. No.	MODELS	
	AX270EG AX275EG AX470EG	AX370EG
D3004	OPEN	USED
R3041	OPEN	USED


IC3001 JCY0080
IC3003 MN3875S
IC3081 OPEN
SIRIAL D/A 8bit x 15ch x 2
WF1
WF2
WF3
WF4
WF8
Q3001
Q3002
Q3006 2SA1774/QRS/-X
Q3007 OPEN
Q3010 OPEN
Q3231,Q3232 2SC4617/QRS/-X
Q3082 2SC4617/QRS/-X
Q3084 2SA1774/QRS/-X
FL3081 OPEN
D3001
D3002 DAN222
D3003 DAN222
D3004 MA78/WK
D3005 DAN222
D3007 OPEN
NREC_DATA
REC_DATA
TL_SPK2500
X3001

NOTES : 1. COMPARISON CHART OF MODELS & MARKS (#). 2. For PROCESS & Y/C waveforms, please refer to page 4-52.

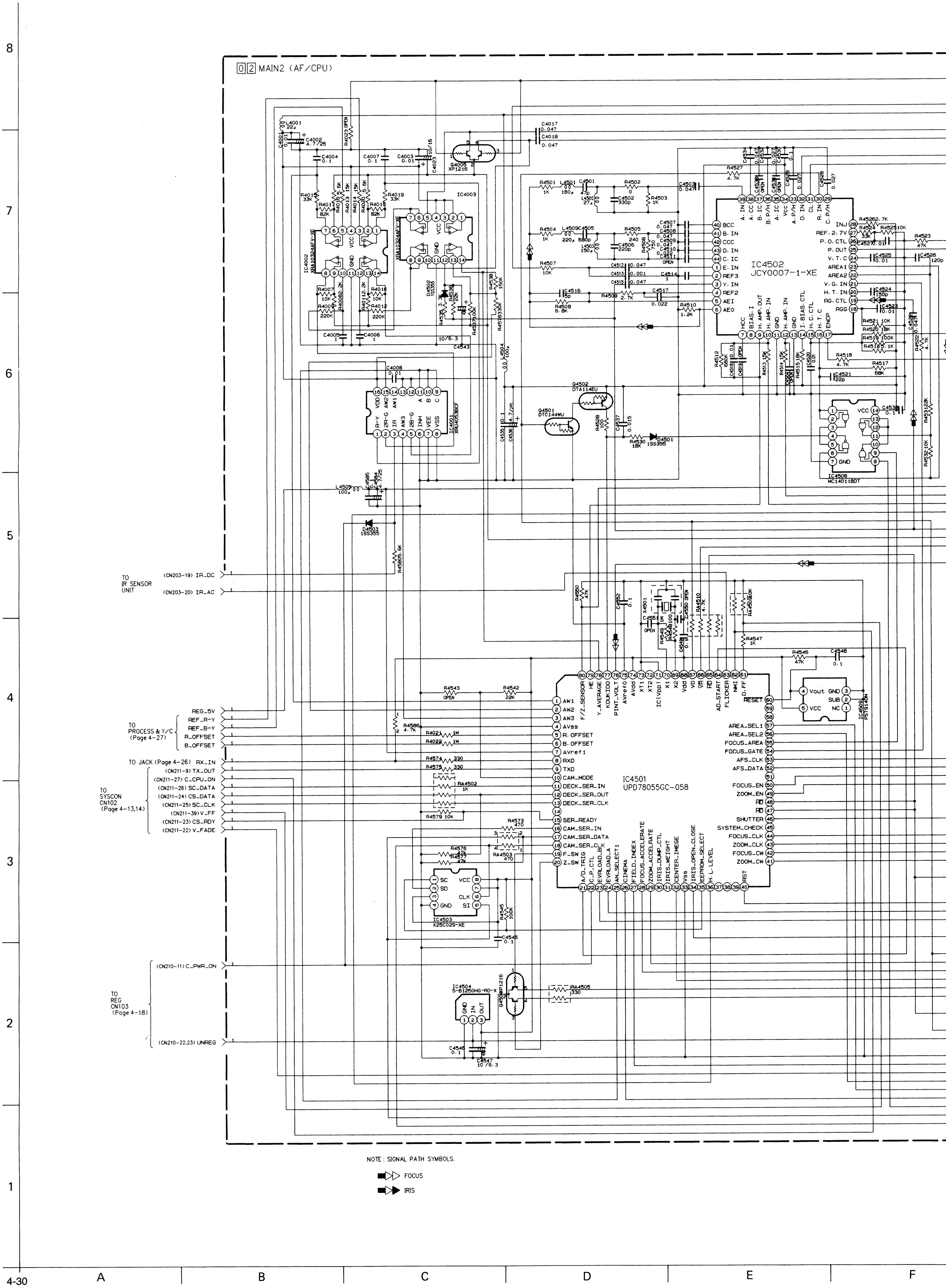
REF. No.	MODELS	
	AX270EG AX275EG AX470EG	AX370EG
D3004	OPEN	USED
R3041	OPEN	USED


V_PLS_ON (CN211-15)
V_OUT
TO JACK (Page 4-26)
VF_VY_OT (CN206-3)
V_FF (CN211-39)
V_PULSE (CN211-21)
V_AL_MUT (CN210-8)
IND_CTL (CN211-16)
VF_IND (CN206-1)
IND (CN211-20)
IND_FR (CN211-19)
DATE (CN211-18)
DATE_FR (CN211-17)
V_TP_FM (CN207-17)
V_PB_C (CN210-15)
V_REC_C (CN210-13)
ME_OUT (CN207-28)
V_PB_FM (CN210-14)
MOD_OUT (CN207-24)
V_REC_FM (CN210-12)
DEK_SYNC (CN210-9/CN207-22)
SP_L (CN210-21)
EE/PB_SC (OPEN)
V_PB_L (CN211-40)
IC3081 OPEN
Q3010 OPEN
Q3251 OPEN
Q3252 OPEN
Q3002 OPEN
Q3001 OPEN
Q3231
Q3232
Q3231, Q3232 2SC4617/QRS/-X
Q3006 2SA1774/QRS/-X
Q3081 OPEN
Q3082
Q3083 OPEN
Q3084
Q3085 OPEN
Q3086 OPEN
Q3082 2SC4617/QRS/-X
Q3084 2SA1774/QRS/-X
D3007 OPEN
D3001 OPEN
D3005 DAN222
D3004
MA78/WK
D3002 DAN222
D3003 DAN222
NREC_DATA
REC_DATA
TL_SPK2500
WF1
WF2
WF3
WF4
WF8
R3031 0Ω
R3044 18K
R3045 27K
R3038 8.2K
R3037 12K
R3034 27K
R3033 18K
R3035 0
R3026 330
R3027 910
R3029 330
R3030 910
R3041 10K
R3025 1K
R3028 1K
R3235 1K
R3232 0Ω
R3233 1.2K
R3234 1.8K
R3220 2.2K
R3036 1K
R3042 OPEN
R3012 OPEN
R3047 OPEN
R3017 OPEN
R3228 1K
R3227 OPEN
R3230 1K
R3222 10K
R3221 1.5K
R3231 0
R3224 1.8K
R3223 6.8K
R3225 1K
R3226 1.2K
R3229 2.2K
R3236 0
R3092 OPEN
R3096 0Ω
R3097 0Ω
R3091 2.2K
R3081 0Ω
R3087 2.2K
R3082 0Ω
C3029 0.01
C3028 0.01
C3027 8P
C3026 15P
C3025 0.1
C3024 220P
C3023 0.015
C3021 1
C3020 22/6.3
C3019 0.01
C3018 0.1
C3039 22/6.3
C3094 2.2/50
C3046 0.01
C3222 0.01
C3221 82P
C3223 OPEN
C3237 0.01
C3236 330P
C3231 56P
C3233 68P
C3232 100P
C3235 12P
L3004 68μ
L3003 100μ
L3208 OPEN
L3233 220μ
L3231 270μ
L3232 39μ
L3002 220μ
Y
C

refer to page 4-52.

G	H	I	J	K	L

4.11 AF/CPU SCHEMATIC DIAGRAM

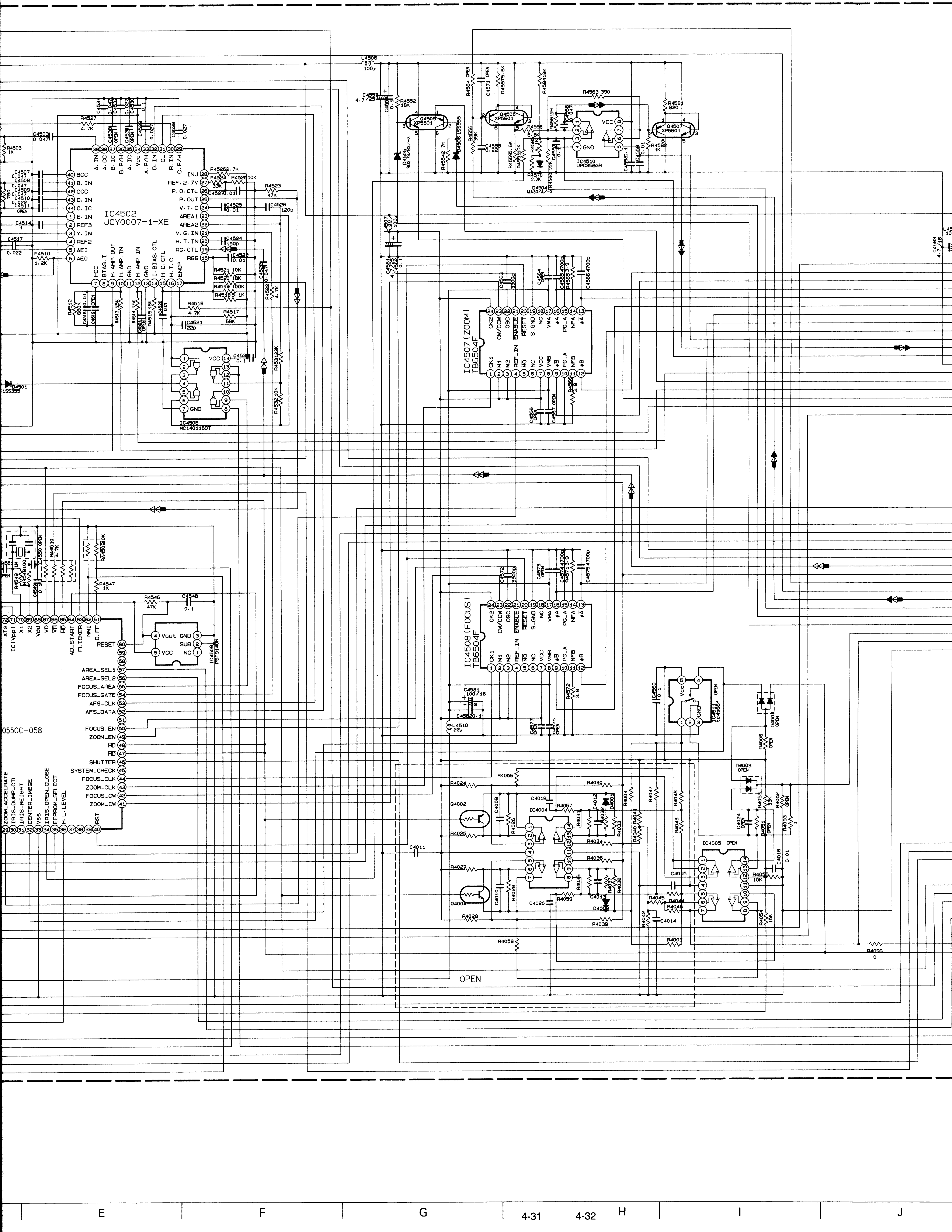


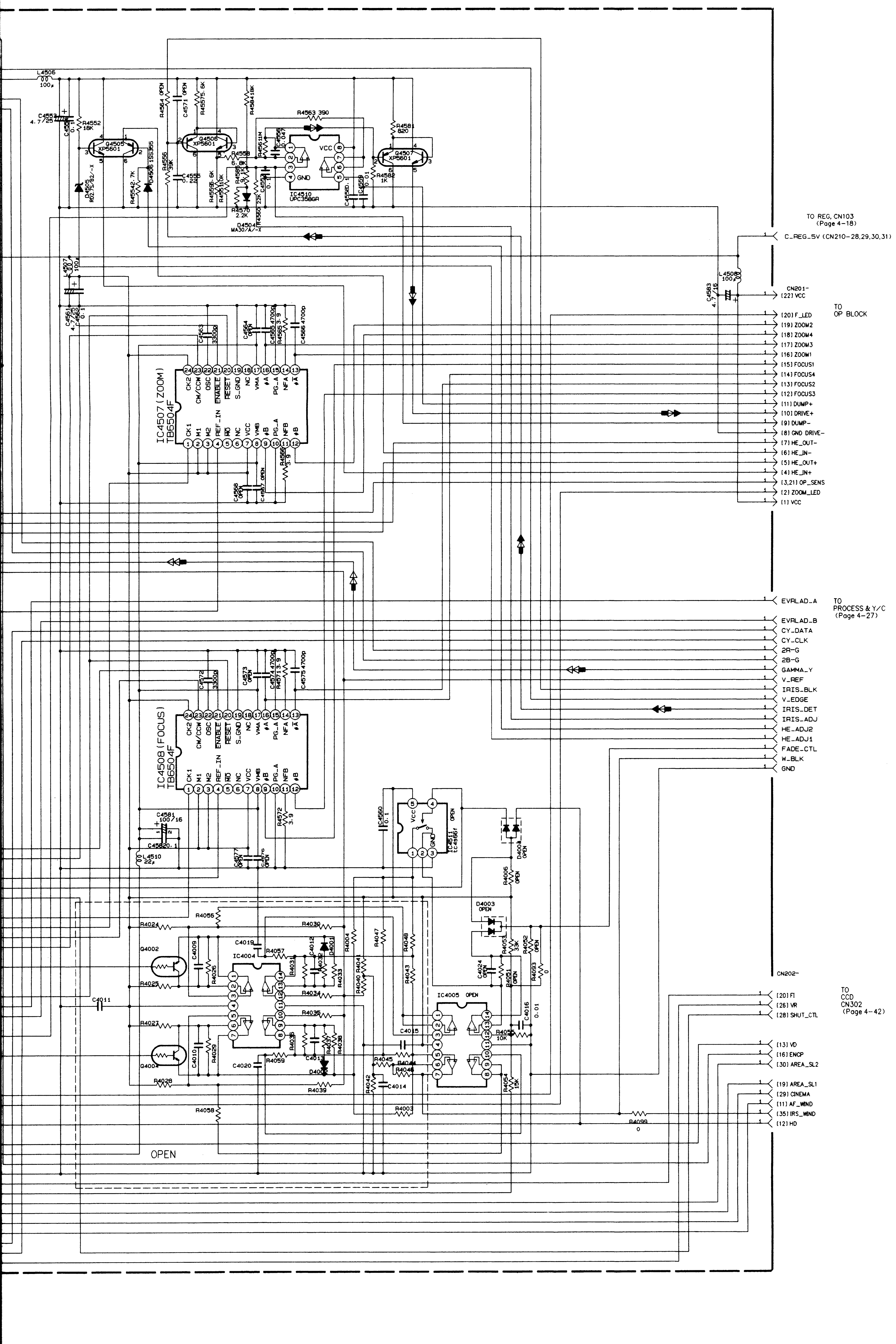
8
7
6
5
4
3
2
1
A
B
C
D
E
F
02 MAIN2 (AF/CPU)
IC4002 XRA10324AFV-XE
IC4003 XRA10324AFV-XE
Q4005 XP1216
IC4001 XRU4053BCF
IC4502 JCY0007-1-XE
IC4506 MC14011BDT
Q4502 DTA114EU
Q4501 DTC144WU
D4501 1SS355
D4502 1SS355
D4503 1SS355
IC4501 UPD78055GC-058
IC4509 PST9140N
IC4503 X25C02S-XE
IC4504 S-81250HG-RD-X
Q4503 MP1216
X4501
TO IR SENSOR UNIT
(CN203-19) IR_DC
(CN203-20) IR_AC
TO PROCESS & Y/C (Page 4-27)
REG_5V
REF_R-Y
REF_B-Y
R_OFFSET
B_OFFSET
TO JACK (Page 4-26) RX_IN
TO SYSCON CN102 (Page 4-13,14)
(CN211-9) TX_OUT
(CN211-27) C_CPU_ON
(CN211-26) SC_DATA
(CN211-24) CS_DATA
(CN211-25) SC_CLK
(CN211-39) V_FF
(CN211-23) CS_RDY
(CN211-22) V_FADE
TO REG CN103 (Page 4-18)
(CN210-11) C_PWR_ON
(CN210-22,23) UNREG
AW1
AW2
AW3
AVss
R. OFFSET
B. OFFSET
AVref1
RXD
TXD
CAM_MODE
DECK_SER_IN
DECK_SER_OUT
DECK_SER_CLK
SER_READY
CAM_SER_IN
CAM_SER_DATA
CAM_SER_CLK
F_SW
Z_SW
A/D_TRIG
C_P_CTL
EVRLOAD_B
EVRLOAD_A
AN_SELECT1
CINEMA
FIELD_INDEX
FOCUS_ACCELERATE
ZOOM_ACCELRATE
IRIS_DUMP_CTL
IRIS_WEIGHT
CENTER_IMEGE
Vss
IRIS_OPEN_CLOSE
EEPROM_SELECT
H. L. LEVEL
RST
RESET
AREA_SEL1
AREA_SEL2
FOCUS_AREA
FOCUS_GATE
AFS_CLK
AFS_DATA
FOCUS_EN
ZOOM_EN
SHUTTER
SYSTEM_CHECK
FOCUS_CLK
ZOOM_CLK
FOCUS_CW
ZOOM_CW
F/Z_SENSOR
HE
Y_AVERAGE
KOUKIDO
PINT_VOLT
AVref0
AVdd
XT1
XT2
IC(Vpp)
X1
X2
Vdd
VD
AD_START
FLICKER
NMI
D.FF
BCC
B. IN
CCC
D. IN
C. IC
E. IN
REF3
Y. IN
REF2
AEI
AEO
A. IN
A. CC
B. IC
B. P/H
A. IC
Vcc
A. P/H
D. IN
CL
R. IN
C. P/H
INJ
REF. 2. 7V
P. O. CTL
P. OUT
V. T. C
AREA1
AREA2
V. G. IN
H. T. IN
RG. CTL
RGG
HCC
BIAS. I
H. AMP. OUT
H. AMP. IN
GND
I. BIAS. CTL
H. C. CTL
H. T. C
ENCP
Vout
SUB
VCC
NC
SC
SD
CLK
SI
IN
OUT

NOTE: SIGNAL PATH SYMBOLS.

■▷▷ FOCUS

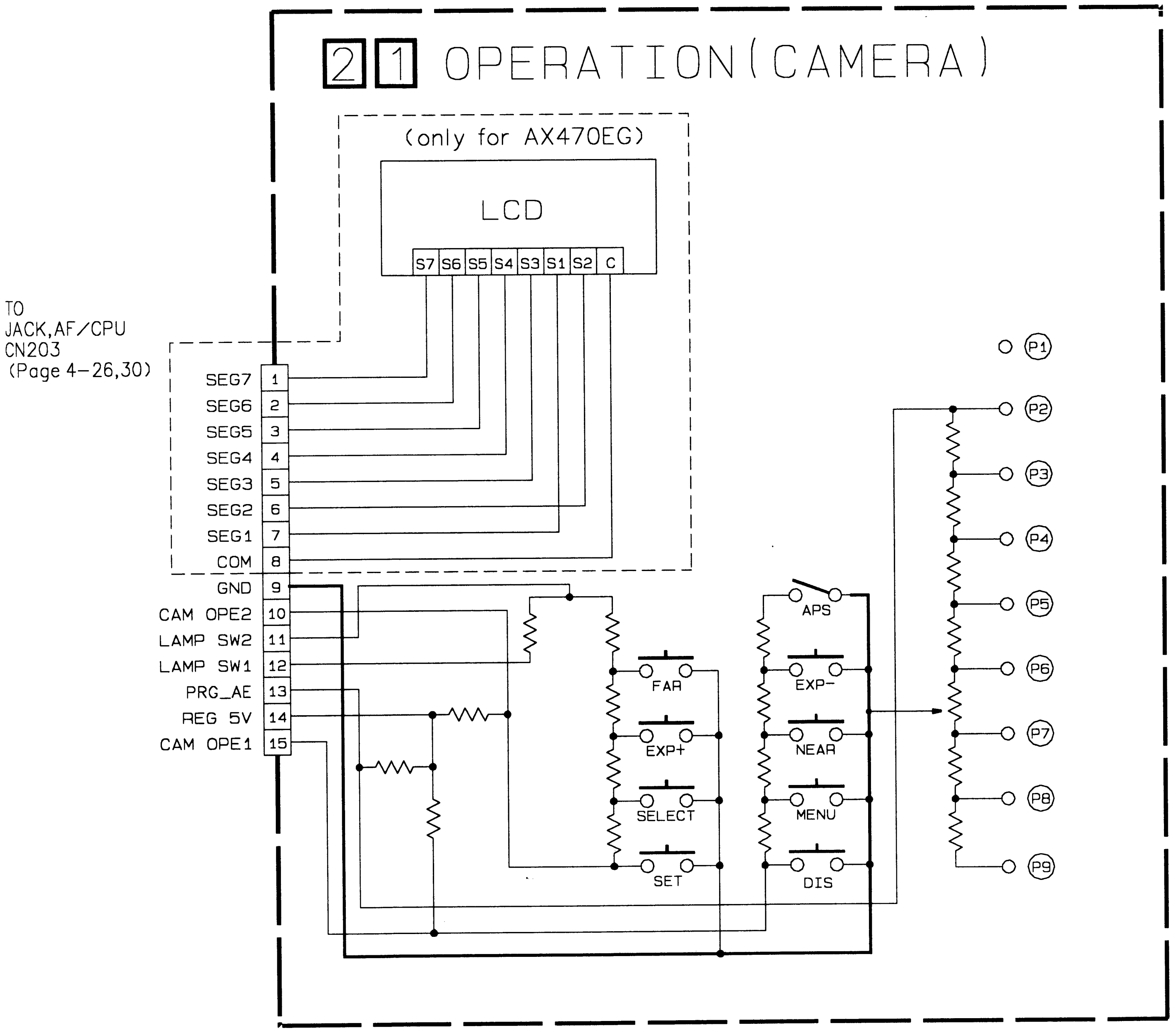
■▷▶ IRIS


IC4502
JCY0007-1-XE
A.IN
A.CC
B.IC
B.P/H
A.IC
Vcc
A.P/H
D.IN
CL
R.IN
C.P/H
BCC
B.IN
CCC
D.IN
C.IC
E.IN
REF3
Y.IN
REF2
AEI
AEO
INJ
REF.2.7V
P.O.CTL
P.OUT
V.T.C
AREA1
AREA2
V.G.IN
H.T.IN
RG.CTL
RGG
HCC
BIAS.I
H.AMP.OUT
H.AMP.IN
GND
H.AMP.IN
GND
I.BIAS.CTL
H.C.CTL
H.T.C
ENCP
IC4506
HC14011BDT
VCC
GND
D4501
1SS355
IC4509
PST9140N
Vout
GND
SUB
NC
VCC
RESET
AREA_SEL1
AREA_SEL2
FOCUS_AREA
FOCUS_GATE
AFS_CLK
AFS_DATA
FOCUS_EN
ZOOM_EN
SHUTTER
SYSTEM_CHECK
FOCUS_CLK
ZOOM_CLK
FOCUS_CW
ZOOM_CW
RST
055GC-058
XT2
IC(Vpp)
X1
X2
Vdd
VD
AD_START
FLICKER
NMI
D.FF
ZOOM_ACCELRATE
IRIS_DUMP_CTL
IRIS_WEIGHT
CENTER_IMEGE
VSS
IRIS_OPEN_CLOSE
EEPROM_SELECT
H.L.LEVEL
L4506
100μ
Q4505
XP5601
Q4506
XP5601
Q4507
XP5601
D4506
1SS355
D4505
RD2.7S-B2/-X
IC4510
UPC358GR
VCC
GND
Q4504
MA307A/-X
R4563 390
R4581
820
R4582
1K
IC4507(ZOOM)
TB6504F
IC4508(FOCUS)
TB6504F
CK2
CW/CCW
OSC
ENABLE
RESET
S_GND
NC
VMA
PG_A
NFA
CK1
M1
M2
REF_IN
VCC
VMB
PG_A
NFB
IC4511
TC4S66F
D4008
OPEN
D4003
OPEN
IC4004
IC4005 OPEN
Q4002
Q4004
OPEN
R4099
0
C4583
4.7/16
C4581
100/16
L4510
22μ
E
F
G
H
I
J


TO REG, CN103
(Page 4-18)
C_REG_5V (CN210-28,29,30,31)
CN201-
[22] VCC
TO
OP BLOCK
[20] F_LED
[19] ZOOM2
[18] ZOOM4
[17] ZOOM3
[16] ZOOM1
[15] FOCUS1
[14] FOCUS4
[13] FOCUS2
[12] FOCUS3
[11] DUMP+
[10] DRIVE+
[9] DUMP-
[8] GND DRIVE-
[7] HE_OUT-
[6] HE_IN-
[5] HE_OUT+
[4] HE_IN+
[3,21] OP_SENS
[2] ZOOM_LED
[1] VCC
EVRLAD_A
TO
PROCESS & Y/C
(Page 4-27)
EVRLAD_B
CY_DATA
CY_CLK
2R-G
2B-G
GAMMA_Y
V_REF
IRIS_BLK
V_EDGE
IRIS_DET
IRIS_ADJ
HE_ADJ2
HE_ADJ1
FADE_CTL
W_BLK
GND
CN202-
[20] FI
[26] VR
[28] SHUT_CTL
TO
CCD
CN302
(Page 4-42)
[13] VD
[16] ENCP
[30] AREA_SL2
[19] AREA_SL1
[29] CINEMA
[11] AF_WIND
[35] IRS_WIND
[12] HD
IC4507 (ZOOM)
TB6504F
IC4508 (FOCUS)
TB6504F
CK2
CW/CCW
OSC
ENABLE
RESET
S_GND
NC
VMA
ϕA
PG_A
NFA
ϕĀ
CK1
M1
M2
REF_IN
MO
VCC
VMB
ϕB
NFB
ϕB̄
IC4510
UPC358GR
VCC
GND
IC4511
TC4S66F
IC4004
IC4005 OPEN
Q4505
XP5601
Q4506
XP5601
Q4507
XP5601
Q4002
Q4004
D4504
MA30/A/-X
D4505
RD2.7S/B2/-X
D4506 1SS355
L4506
100μ
L4507
100μ
L4508
100μ
L4510
22μ
C4553
4.7/25
C4554
0.1
R4552
18K
R4554 OPEN
C4571 OPEN
R4557 5.6K
R4584 18K
R4563 390
R4581
820
R4582
1K
R4556
39K
C4555
0.22
R4558
6.8K
R4555 5.6K
R4551 10K
R4554 2.7K
R4570
2.2K
R4560 22K
C4583
4.7/16
C4561
4.7/25
C4562
0.1
C4563
3300p
C4564
OPEN
C4565 4700p
R4565 3.9
C4566 4700p
R4566
3.9
C4568
OPEN
C4567 OPEN
C4572
3300p
C4573
OPEN
C4574 4700p
R4571 3.9
C4575 4700p
R4572
3.9
C4581
100/16
C4582 0.1
C4577
OPEN
C4576
OPEN
C4550
0.1
D4004
OPEN
R4006
OPEN
D4003
OPEN
R4053
33K
R4052
OPEN
R4093
0
C4024
OPEN
R4051
OPEN
C4016
0.01
R4050
10K
R4054
15K
R4099
0
R4056
R4024
R4025
R4026
C4009
C4019
R4057
R4030
C4012
R4032
D4001
R4031
R4033
R4034
R4004
R4040
R4047
R4048
R4043
C4011
R4027
R4029
C4010
R4035
R4036
R4037
R4038
C4013
D4002
R4059
C4020
R4028
R4039
C4015
R4045
R4044
R4046
R4042
C4014
R4003
R4058
OPEN

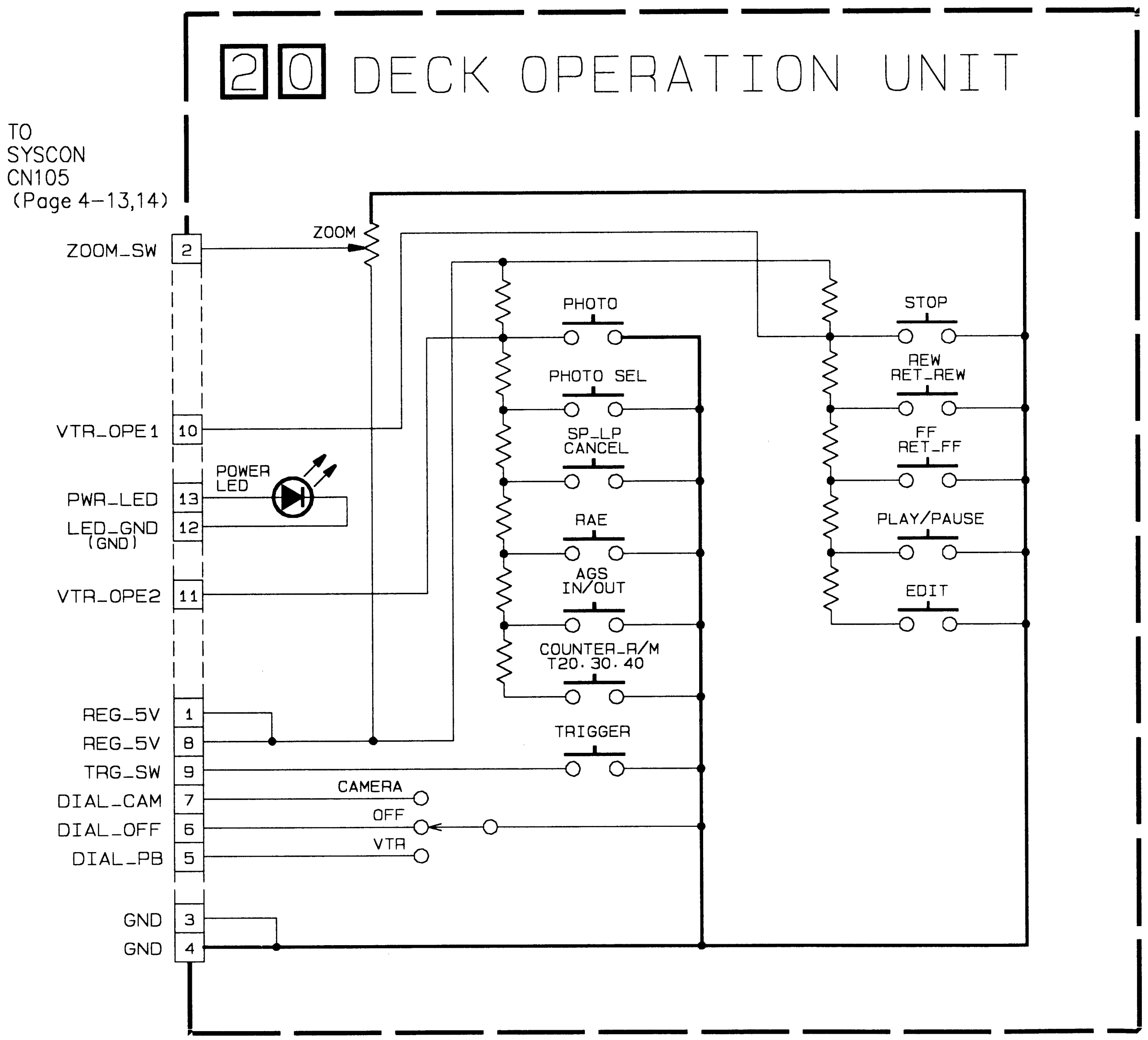
4.12 OPERATION (CAMERA) AND OPERATION UNIT SCHEMATIC DIAGRAM

NOTE: This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.



21 OPERATION(CAMERA)
(only for AX470EG)
LCD
S7 S6 S5 S4 S3 S1 S2 C
TO
JACK,AF/CPU
CN203
(Page 4-26,30)
SEG7 1
SEG6 2
SEG5 3
SEG4 4
SEG3 5
SEG2 6
SEG1 7
COM 8
GND 9
CAM OPE2 10
LAMP SW2 11
LAMP SW1 12
PRG_AE 13
REG 5V 14
CAM OPE1 15
FAR
EXP+
SELECT
SET
APS
EXP-
NEAR
MENU
DIS
P1
P2
P3
P4
P5
P6
P7
P8
P9

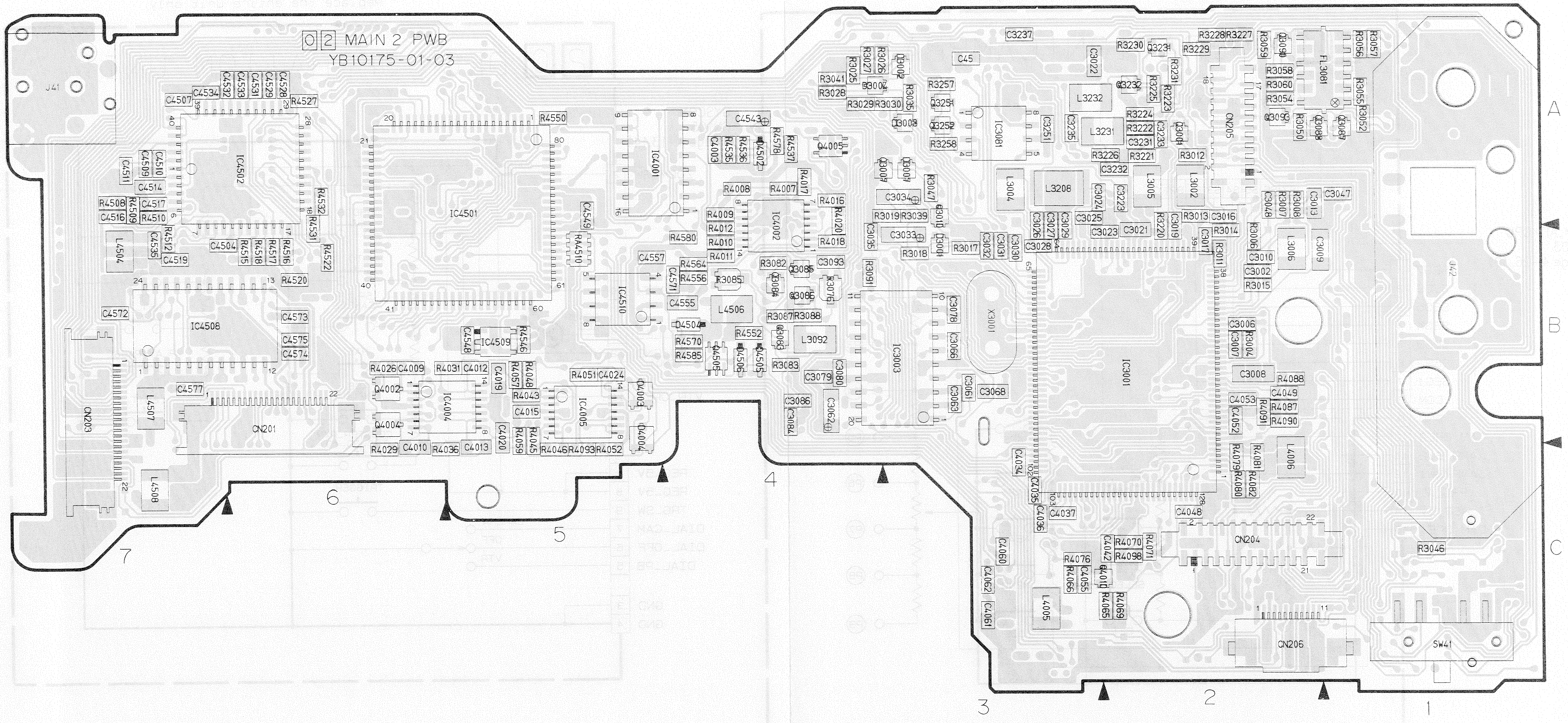
NOTE: This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.



20 DECK OPERATION UNIT
TO
SYSCON
CN105
(Page 4-13,14)
ZOOM_SW 2
ZOOM
VTR_OPE1 10
POWER
LED
PWR_LED 13
LED_GND 12
(GND)
VTR_OPE2 11
REG_5V 1
REG_5V 8
TRG_SW 9
DIAL_CAM 7
DIAL_OFF 6
DIAL_PB 5
GND 3
GND 4
PHOTO
PHOTO SEL
SP_LP
CANCEL
RAE
AGS
IN/OUT
COUNTER_R/M
T20. 30. 40
TRIGGER
CAMERA
OFF
VTR
STOP
REW
RET_REW
FF
RET_FF
PLAY/PAUSE
EDIT

4.13 MAIN 2 CIRCUIT BOARD

–FOIL SIDE (B)–



02 MAIN 2 PWB
YB10175-01-03
J41
J42
IC4501
IC4502
IC4508
IC4509
IC4510
IC4001
IC4002
IC4004
IC4005
IC3001
IC3003
IC3081
CN201
CN203
CN204
CN205
CN206
SW41
X3001
FL3081
L4504
L4506
L4507
L4508
L3092
L3232
L3231
L3004
L3206
L3005
L3002
L3006
L4005
L4006
Q4002
Q4003
Q4004
Q4005
C3237
C45
R3230
Q3231
R3228
R3227
R3229
R4550
R4527
C4507
C4534
R4520
C4572
C4573
C4575
C4574
C4577
R4580
C4557
R4556
L4506
R4552
R3083
C3079
C3086
C3068
C3008
R4088
C4053
R4087
R4090
R3046
C4037
C4048
R4070
R4098
R4076
R4029
C4010
R4036
C4013
R4046
R4093
R4052
R4026
C4009
R4031
C4012
R4051
C4024
1
2
3
4
5
6
7
A
B
C

COMPONENT PARTS LOCATION GUIDE <MAIN2>

REF.No.	LOCATION		
CAPACITOR			
C41	A	C	1B
C42	A	C	1A
C43	A	C	1B
C44	A	C	1B
C45	B	C	3A
C3001	A	C	2A
C3002	B	C	2B
C3003	A	C	2B
C3004	A	C	2B
C3005	A	C	2B
C3006	B	C	2B
C3007	B	C	2B
C3008	B	C	2B
C3009	B	C	2B
C3010	B	C	2B
C3011	A	C	2B
C3012	A	C	2B
C3013	B	C	2A
C3014	A	C	2A
C3015	A	C	2A
C3016	B	C	2A
C3017	B	C	2B
C3018	A	C	2B
C3019	B	C	2B
C3020	A	C	2A
C3021	B	C	2B
C3022	B	C	3A
C3023	B	C	2B
C3024	B	C	3A
C3025	B	C	3A
C3026	B	C	3B
C3027	B	C	3B
C3028	B	C	3B
C3029	B	C	3B
C3030	B	C	3B
C3031	B	C	3B
C3032	B	C	3B
C3033	B	C	3B
C3034	B	C	3A
C3035	B	C	4B
C3036	A	C	3B
C3037	A	C	3A
C3038	A	C	3A
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CN207	A	C	1C
CN210	A	C	3A
CN211	A	C	6A
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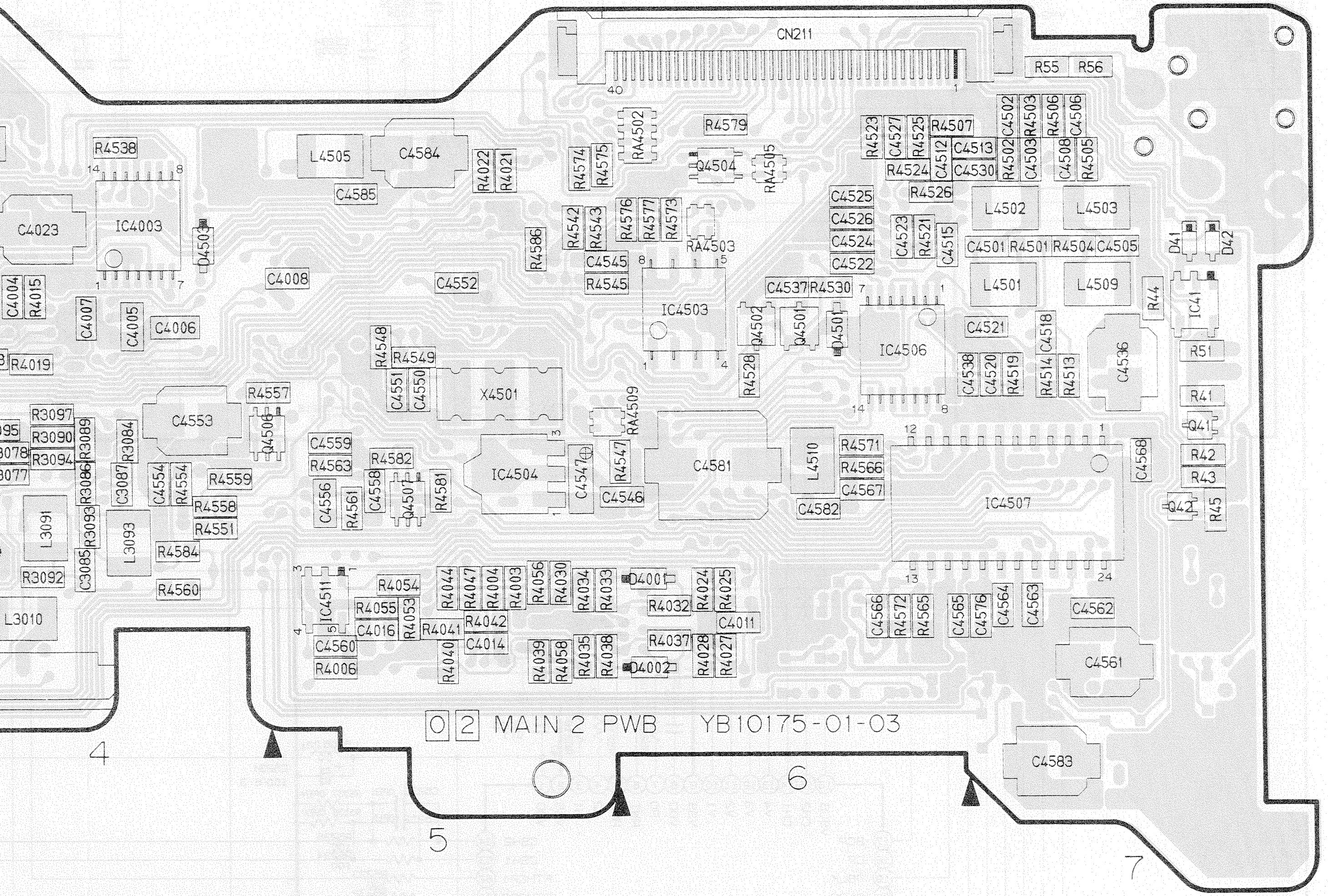
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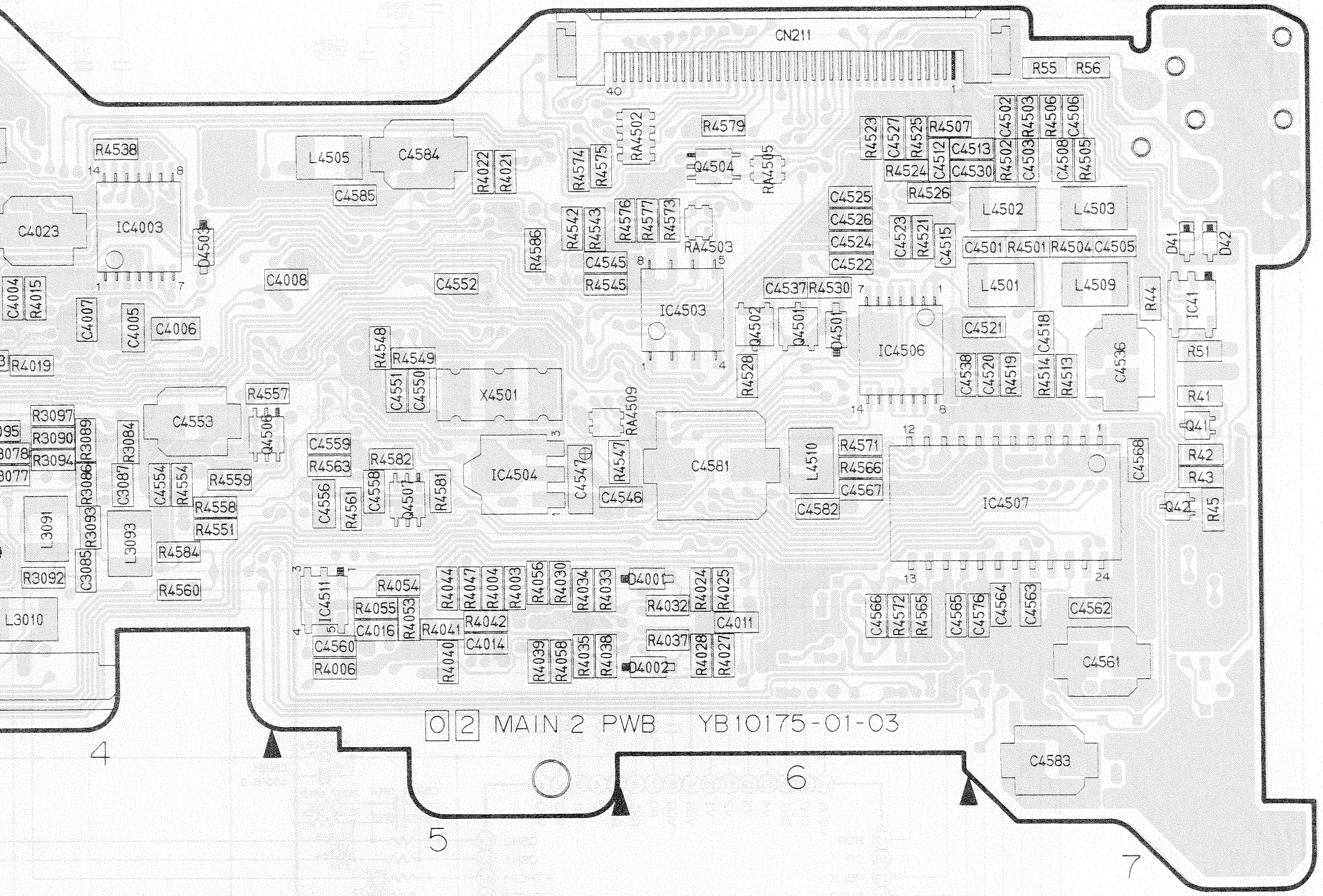
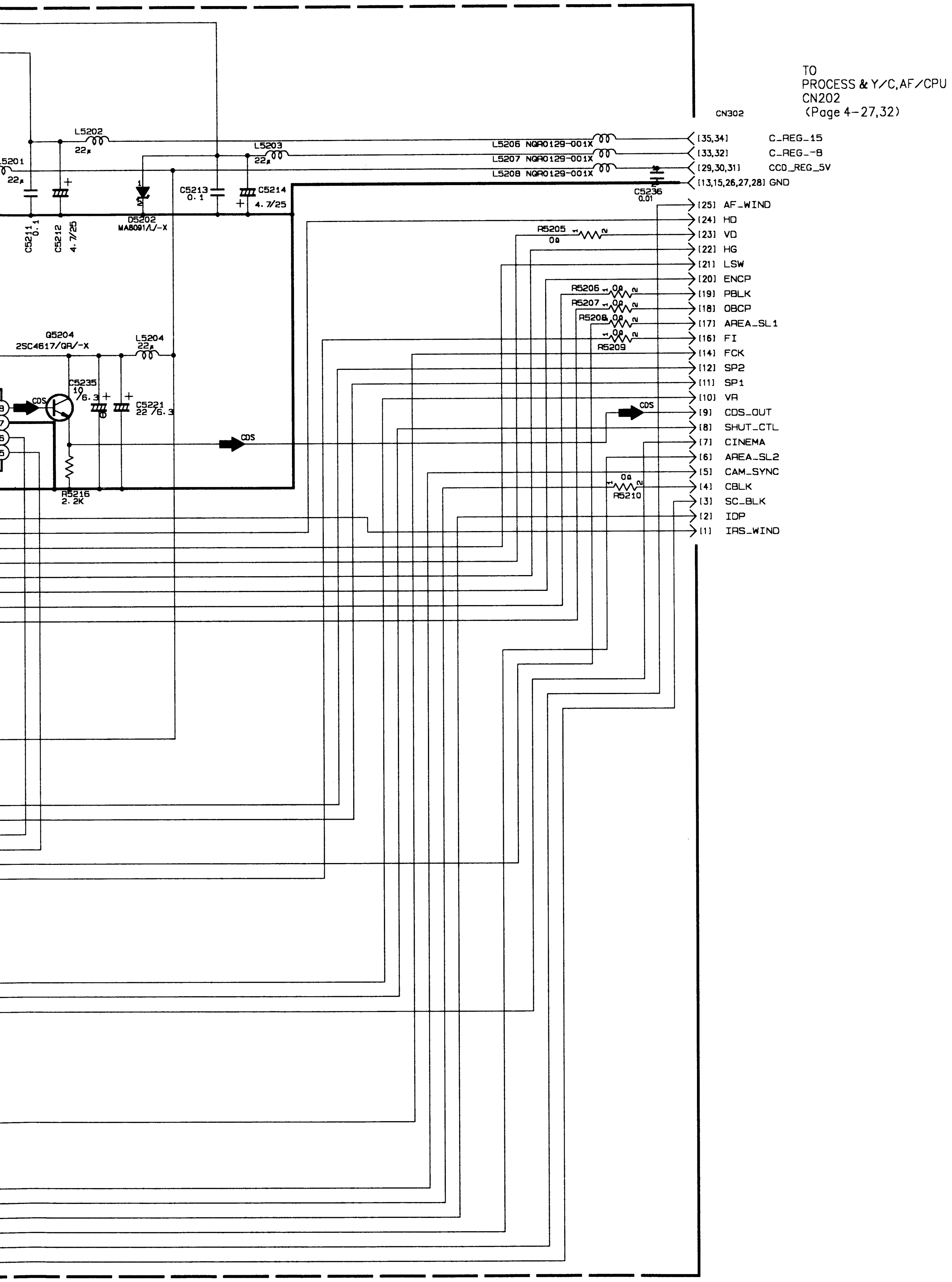
C4566
R4572
R4565
C4565
C4576
C4564
C4563
C4562
C4561
L3010
C4583
02 MAIN 2 PWB YB10175-01-03
4
5
6
7

COMPONENT SIDE (A)–



0 2 MAIN 2 PWB YB10175-01-03
CN211
IC4003
IC4503
IC4504
IC4506
IC4507
IC4511
IC41
X4501
L4505
L4502
L4503
L4501
L4509
L4510
L3091
L3093
L3010
C4584
C4581
C4553
C4023
C4536
C4561
C4562
C4583
RA4502
RA4503
RA4505
RA4509
Q4504
Q4502
Q4501
Q4503
Q4506
Q4507
Q41
Q42
D4501
D4001
D4002
D41
D42
R55
R56
R4579
R4538
4
5
6
7


TO
PROCESS & Y/C,AF/CPU
CN202
(Page 4-27,32)
CN302
L5202
22µ
L5201
22µ
L5203
22µ
C5211
0.1
C5212
4.7/25
D5202
MA8091/L/-X
C5213
0.1
C5214
4.7/25
L5206 NQR0129-001X
L5207 NQR0129-001X
L5208 NQR0129-001X
C5236
0.01
R5205
0Ω
R5206
R5207
R5208
R5209
0Ω
R5210
Q5204
2SC4617/QR/-X
L5204
22µ
C5235
10/6.3
C5221
22/6.3
R5216
2.2K
CDS
CDS
CDS
[35,34] C_REG_15
[33,32] C_REG_-8
[29,30,31] CCD_REG_5V
[13,15,26,27,28] GND
[25] AF_WIND
[24] HD
[23] VD
[22] HG
[21] LSW
[20] ENCP
[19] PBLK
[18] OBCP
[17] AREA_SL1
[16] FI
[14] FCK
[12] SP2
[11] SP1
[10] VR
[9] CDS_OUT
[8] SHUT_CTL
[7] CINEMA
[6] AREA_SL2
[5] CAM_SYNC
[4] CBLK
[3] SC_BLK
[2] IDP
[1] IRS_WIND

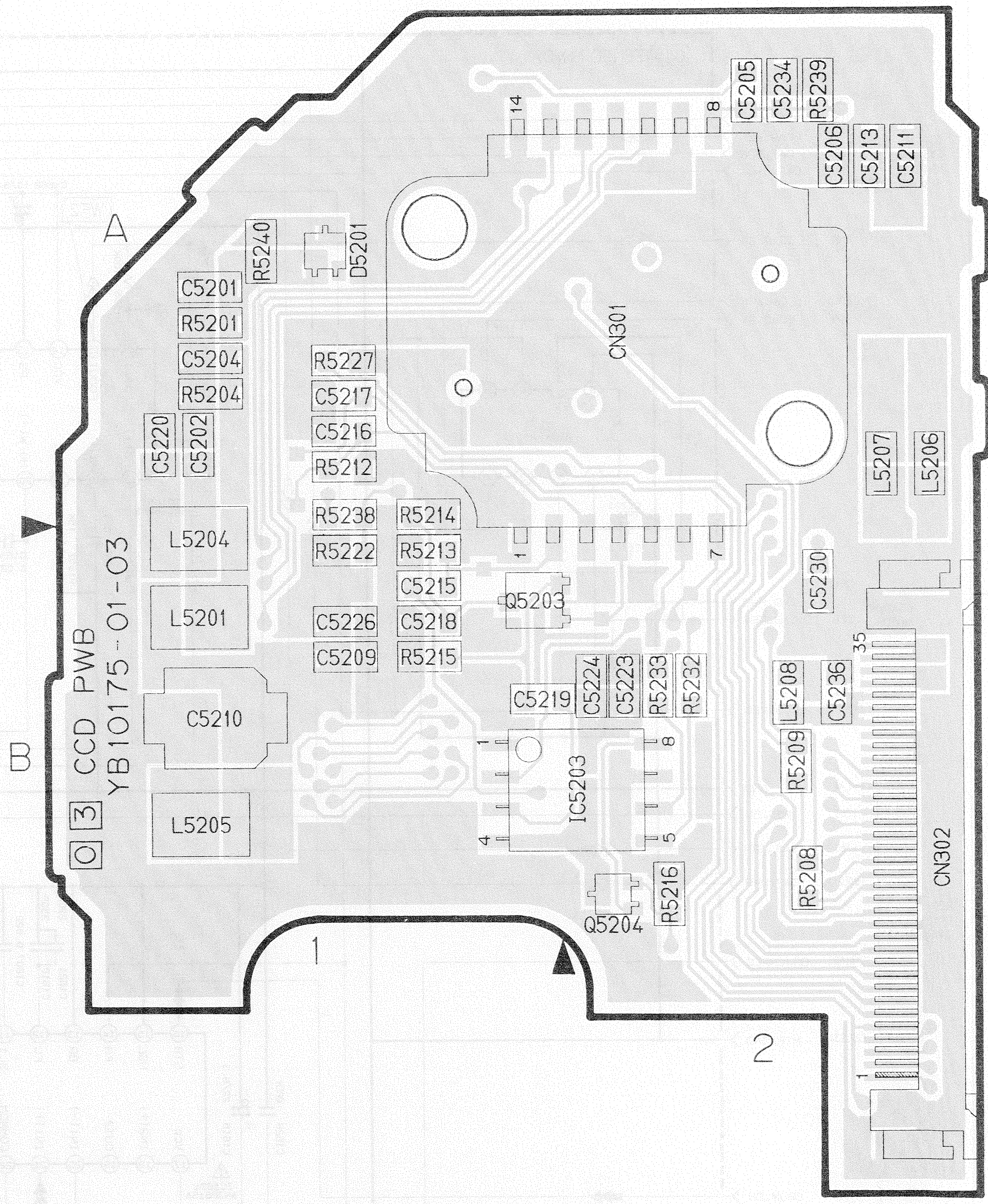
NOTE : For CCD waveforms, please refer to page 4-52.

T PARTS LOCATION GUIDE

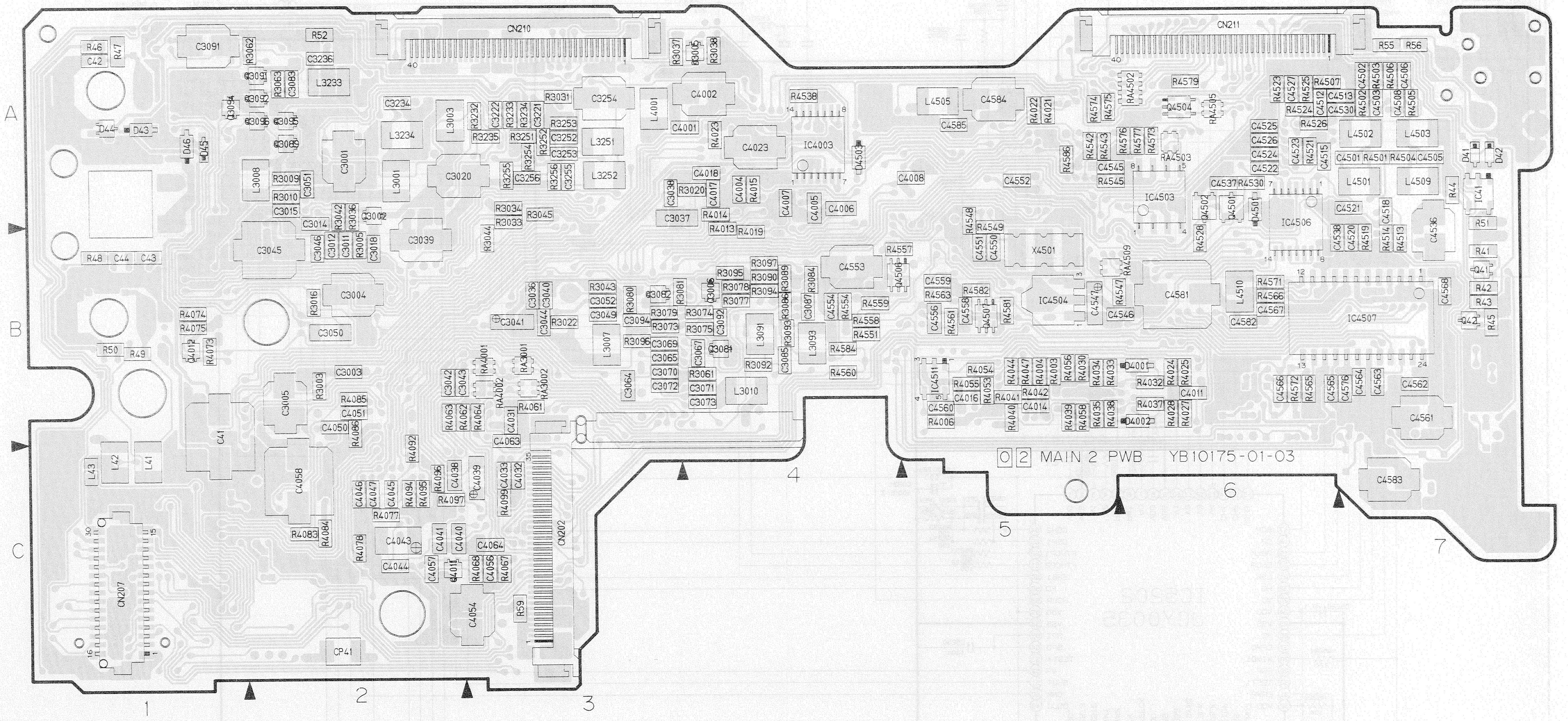
ATION	
TOR	
C	1A
C	1A
C	1A
C	2A
C	2A
C	1B
C	1B
C	2A
C	2A
C	2A
C	1A
C	1B
C	1A
C	1A
C	1B
C	1B
C	1A
C	1A
C	2B
C	2B
C	2B
C	2B
C	1B
C	1A
C	2A
C	1A
C	2B
C	1B
C	2B
C	2B
C	2A
C	1A
C	2B
CTOR	
C	2A
C	2B
DE	
C	1A
C	1A
C	1B
C	2B
C	1B
IL	
C	1B
C	2A
C	2A
C	1B
C	1B
C	2A
C	2A
C	2B
ISTOR	
C	1B
C	2B
C	2A
STOR	
C	1A
C	1A
C	2B
C	2B

REF.No.	LOCATION		
R5207	B	C	2B
R5208	A	C	2B
R5209	A	C	2B
R5210	B	C	2B
R5212	A	C	1A
R5213	A	C	1B
R5214	A	C	1A
R5215	A	C	1B
R5216	A	C	2B
R5217	B	C	2B
R5218	B	C	2B
R5219	B	C	2B
R5220	B	C	1B
R5221	B	C	1A
R5222	A	C	1B
R5223	B	C	1A
R5224	B	C	1A
R5225	B	C	1A
R5226	B	C	1A
R5227	A	C	1A
R5228	B	C	2A
R5229	B	C	1A
R5232	A	C	2B
R5233	A	C	2B
R5234	B	C	2B
R5235	B	C	2B
R5236	B	C	2B
R5237	B	C	2B
R5238	A	C	1A
R5239	A	C	2A
R5240	A	C	1A
OTHER			
X5201	B	C	2A

–COMPONENT SIDE (A)–

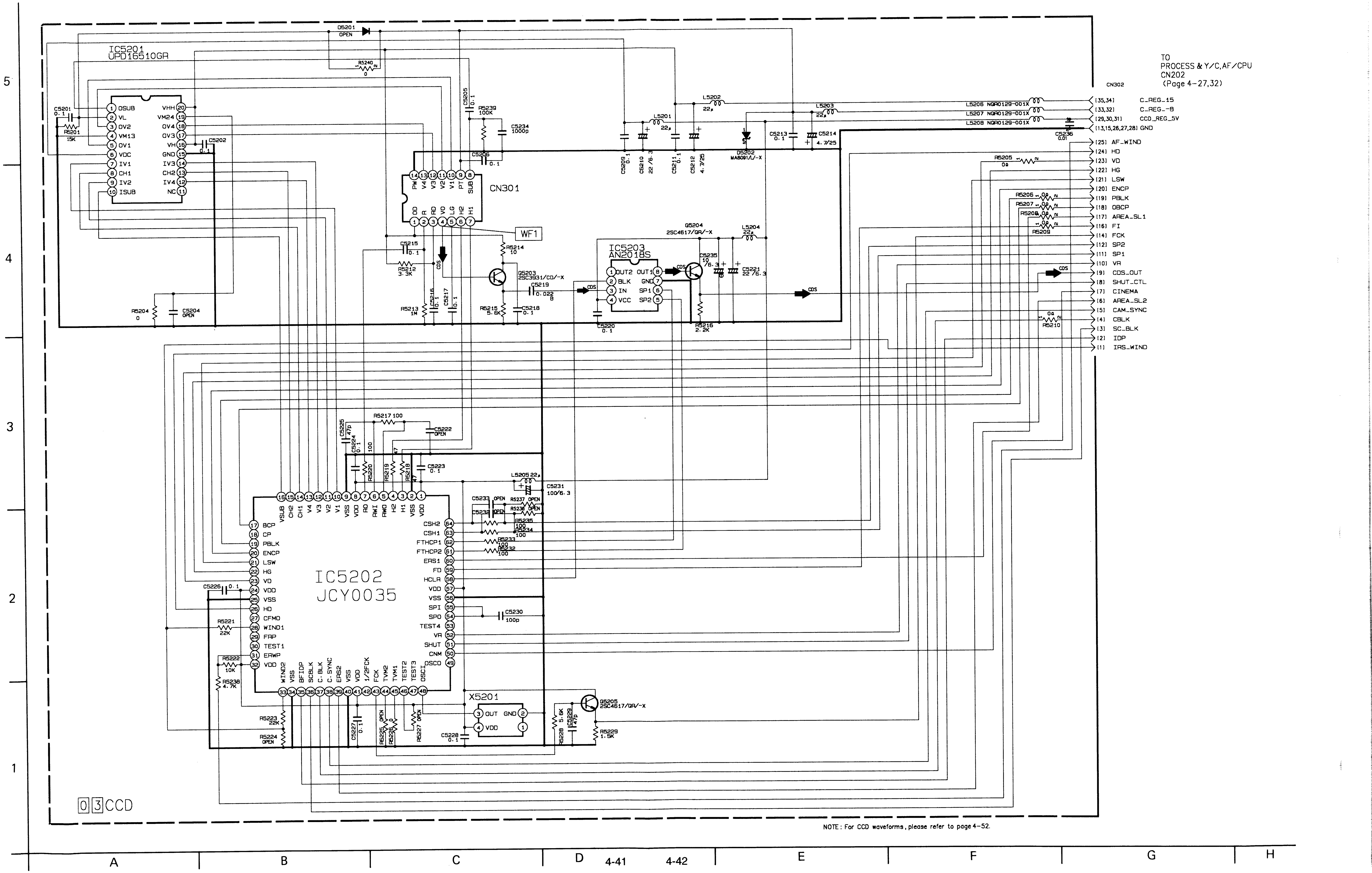

A
B
1
2
CCD PWB
YB10175-01-03
0 3
C5205
C5234
R5239
C5206
C5213
C5211
14
8
1
7
CN301
R5240
D5201
C5201
R5201
C5204
R5204
R5227
C5217
C5216
R5212
C5220
C5202
L5207
L5206
L5204
R5238
R5214
R5222
R5213
C5215
Q5203
C5230
L5201
C5226
C5218
C5209
R5215
35
C5219
C5224
C5223
R5233
R5232
L5208
C5236
C5210
IC5203
4
5
R5209
L5205
R5208
CN302
R5216
Q5204

–COMPONENT SIDE (A)–



02 MAIN 2 PWB YB10175-01-03
CN210
CN211
CN202
CN207
IC4003
IC4503
IC4504
IC4506
IC4507
IC4511
X4501
L3233
L3234
L3003
L3001
L3008
L3251
L3252
L4001
L4505
L4502
L4503
L4501
L4509
L4510
L3007
L3091
L3093
L3010
L41
L42
L43
C3091
C3001
C3020
C3039
C3045
C3004
C3050
C3005
C3254
C4002
C4023
C4584
C4552
C4553
C4581
C4536
C4561
C4562
C4583
C4058
C4043
C4054
C41
CP41
D41
D42
D43
D44
Q41
Q42
R41
R42
R43
R44
R45
R46
R47
R48
R49
R50
R51
R52
R55
R56
R59
A
B
C
1
2
3
4
5
6
7

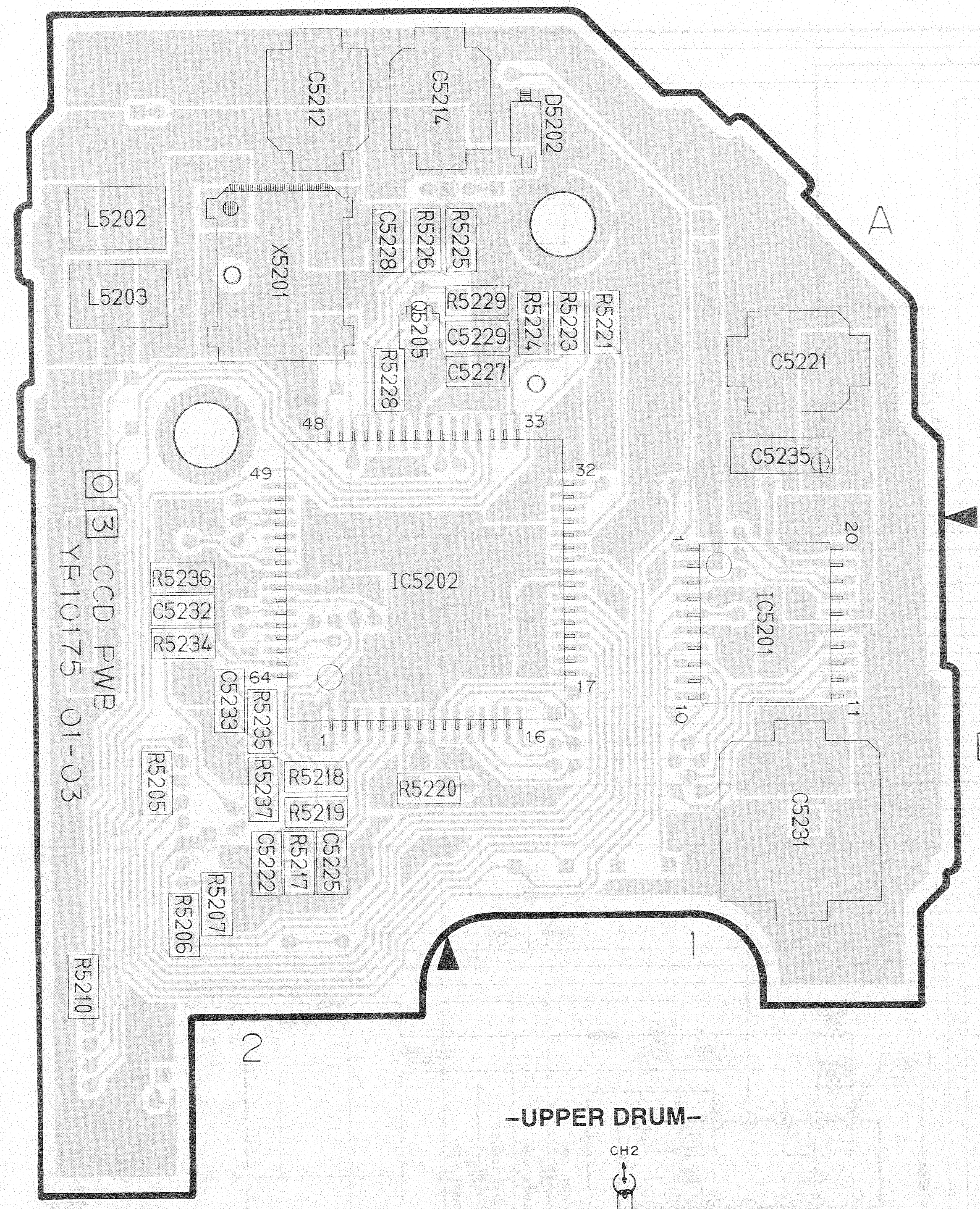
4.14 CCD SCHEMATIC DIAGRAM


IC5201
UPD16510GR
DSUB
VL
DV2
VM13
DV1
VDC
IV1
CH1
IV2
ISUB
VHH
VM24
OV4
OV3
VH
GND
IV3
CH2
IV4
NC
C5201
0.1
R5201
15K
C5202
0.1
R5204
0
C5204
OPEN
D5201
OPEN
R5240
0
C5205
0.1
R5239
100K
C5234
1000p
C5206
0.1
CN301
PW
V4
V3
V2
V1
PT
SUB
OD
R
RD
VO
LG
H2
H1
WF1
C5215
0.1
R5212
3.3K
R5213
1M
C5216
0.1
C5217
0.1
CDS
R5214
10
Q5203
2SC3931/CD/-X
C5219
0.022
R5215
5.6K
C5218
0.1
L5201
22μ
L5202
22μ
L5203
22μ
C5209
0.1
C5210
22/6.3
C5211
0.1
C5212
4.7/25
D5202
MA8091/L/-X
C5213
0.1
C5214
4.7/25
Q5204
2SC4617/QR/-X
L5204
22μ
IC5203
AN2018S
OUT2
OUT1
BLK
GND
IN
SP1
VCC
SP2
C5235
10/6.3
C5221
22/6.3
C5220
0.1
R5216
2.2K
TO
PROCESS & Y/C, AF/CPU
CN202
(Page 4-27,32)
CN302
L5206 NQR0129-001X
L5207 NQR0129-001X
L5208 NQR0129-001X
C5236
0.01
[35,34] C_REG_15
[33,32] C_REG_-8
[29,30,31] CCD_REG_5V
[13,15,26,27,28] GND
[25] AF_WIND
[24] HD
[23] VD
[22] HG
[21] LSW
[20] ENCP
[19] PBLK
[18] OBCP
[17] AREA_SL1
[16] FI
[14] FCK
[12] SP2
[11] SP1
[10] VR
[9] CDS_OUT
[8] SHUT_CTL
[7] CINEMA
[6] AREA_SL2
[5] CAM_SYNC
[4] CBLK
[3] SC_BLK
[2] IDP
[1] IRS_WIND
R5205
0Ω
R5206
R5207
R5208
R5209
R5210
0Ω
R5217 100
C5225
47p
C5224
0.1
C5222
OPEN
R5220
100
R5219
47
R5218
47
C5223
0.1
L5205 22μ
C5231
100/6.3
C5233 OPEN
C5232 OPEN
R5237 OPEN
R5236 OPEN
R5235
100
R5234
100
R5233
100
R5232
100
IC5202
JCY0035
VSUB
CH2
CH1
V4
V3
V2
V1
VSS
RO
RWI
RWO
H2
H1
VSS
VDD
BCP
CP
PBLK
ENCP
LSW
HG
VD
VDD
VSS
HD
CFMO
WIND1
FRP
TEST1
ERWP
VDD
CSH2
CSH1
FTHCP1
FTHCP2
ERS1
FD
HCLR
VDD
VSS
SPI
SPO
TEST4
VR
SHUT
CNM
OSCO
WIND2
VSS
BFIDP
SCBLK
C.BLK
C.SYNC
ERS2
VSS
VDD
1/2FCK
FCK
TVM2
TVM1
TEST2
TEST3
OSCI
C5226
0.1
R5221
22K
R5222
10K
R5238
4.7K
C5230
100p
R5223
22K
R5224
OPEN
C5227
0.1
R5225
OPEN
R5226
0
R5227
OPEN
C5228
0.1
X5201
OUT
GND
VDD
R5228
5.6K
C5229
47p
Q5205
2SC4617/QR/-X
R5229
1.5K
03 CCD
1
2
3
4
5
A
B
C
D
E
F
G
H

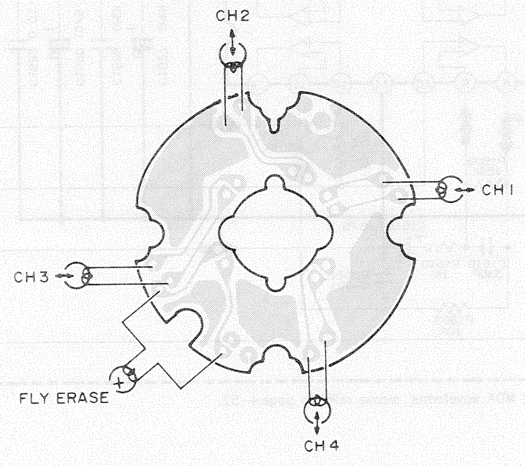
NOTE: For CCD waveforms, please refer to page 4-52.

4.15 CCD AND UPPER DRUM CIRCUIT BOARDS

-FOIL SIDE (B)-


L5202
L5203
X5201
C5212
C5214
D5202
C5228
R5226
R5225
R5229
C5229
C5227
R5224
R5223
R5221
Q5205
R5228
C5221
C5235
48
33
49
32
64
17
1
16
IC5202
IC5201
1
20
10
11
C5231
R5236
C5232
R5234
C5233
R5235
R5237
R5218
R5219
R5220
R5205
C5222
R5217
C5225
R5207
R5206
R5210
0 3 CCD PWB
YF10175-01-03
A
B
1
2

-UPPER DRUM-

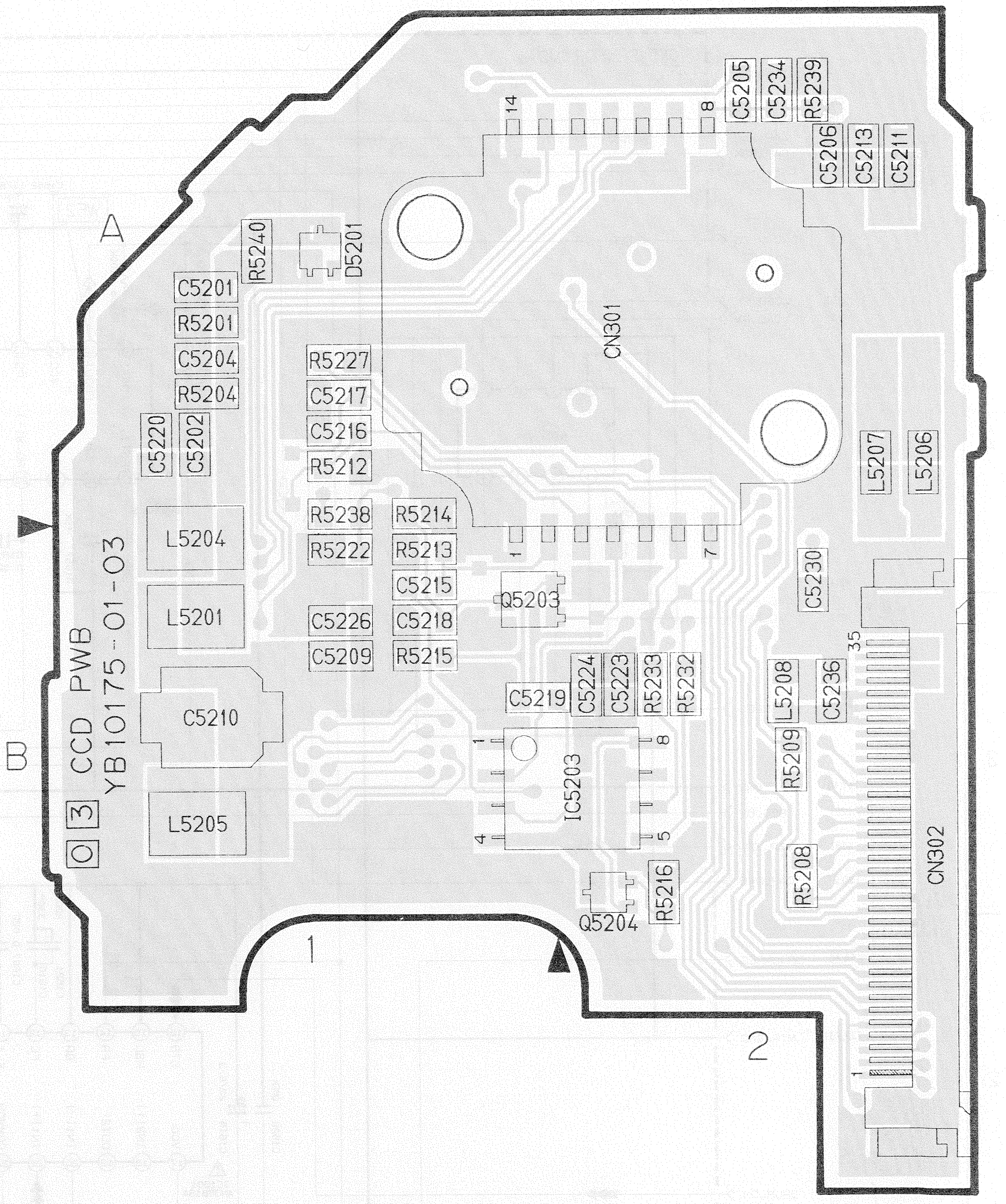

CH2
CH1
CH3
FLY ERASE
CH4

4 0 UPPER DRUM PWB

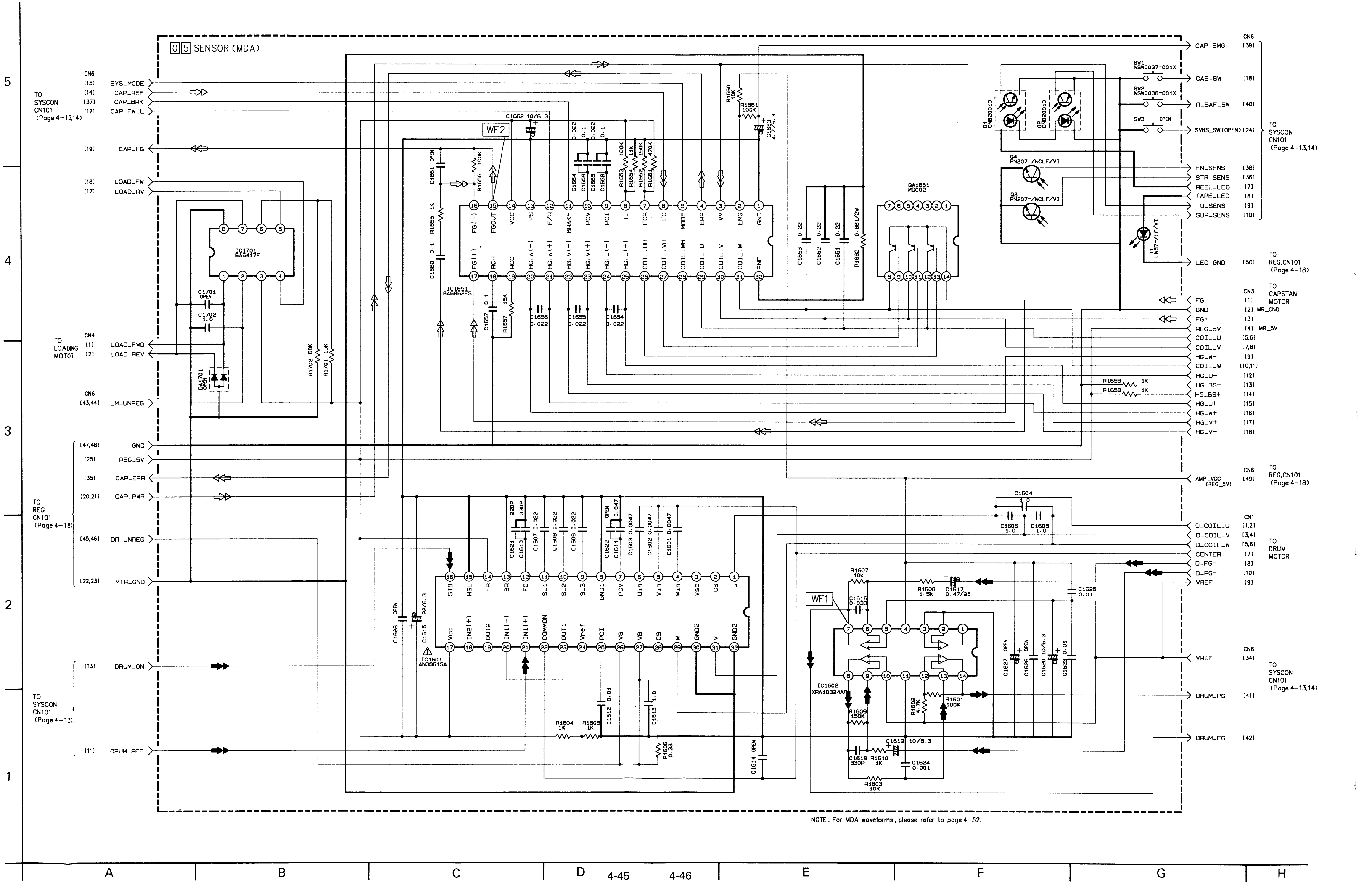
COMPONENT PARTS LOCATION GUIDE
<CCD>

REF.No.	LOCATION		
CAPACITOR			
C5201	A	C	1A
C5202	A	C	1A
C5204	A	C	1A
C5205	A	C	2A
C5206	A	C	2A
C5209	A	C	1B
C5210	A	C	1B
C5211	A	C	2A
C5212	B	C	2A
C5213	A	C	2A
C5214	B	C	1A
C5215	A	C	1B
C5216	A	C	1A
C5217	A	C	1A
C5218	A	C	1B
C5219	A	C	1B
C5220	A	C	1A
C5221	B	C	1A
C5222	B	C	2B
C5223	A	C	2B
C5224	A	C	2B
C5225	B	C	2B
C5226	A	C	1B
C5227	B	C	1A
C5228	B	C	2A
C5229	B	C	1A
C5230	A	C	2B
C5231	B	C	1B
C5232	B	C	2B
C5233	B	C	2B
C5234	A	C	2A
C5235	B	C	1A
C5236	A	C	2B
CONNECTOR			
CN301	A	C	2A
CN302	A	C	2B
DIODE			
D5201	A	C	1A
D5202	B	C	1A
IC			
IC5201	B	C	1B
IC5202	B	C	2B
IC5203	A	C	1B
COIL			
L5201	A	C	1B
L5202	B	C	2A
L5203	B	C	2A
L5204	A	C	1B
L5205	A	C	1B
L5206	A	C	2A
L5207	A	C	2A
L5208	A	C	2B
TRANSISTOR			
Q5203	A	C	1B
Q5204	A	C	2B
Q5205	B	C	2A
RESISTOR			
R5201	A	C	1A
R5204	A	C	1A
R5205	B	C	2B
R5206	B	C	2B
R5207	B	C	2B
R5208	A	C	2B
R5209	A	C	2B
R5210	B	C	2B
R5212	A	C	1A
R5213	A	C	1B
R5214	A	C	1A
R5215	A	C	1B
R5216	A	C	2B
R5217	B	C	2B
R5218	B	C	2B
R5219	B	C	2B
R5220	B	C	1B
R5221	B	C	1A
R5222	A	C	1B
R5223	B	C	1A
R5224	B	C	1A
R5225	B	C	1A
R5226	B	C	1A
R5227	A	C	1A
R5228	B	C	2A
R5229	B	C	1A
R5232	A	C	2B
R5233	A	C	2B
R5234	B	C	2B
R5235	B	C	2B
R5236	B	C	2B
R5237	B	C	2B
R5238	A	C	1A
R5239	A	C	2A
R5240	A	C	1A
OTHER			
X5201	B	C	2A

-COMPONENT SIDE (A)-

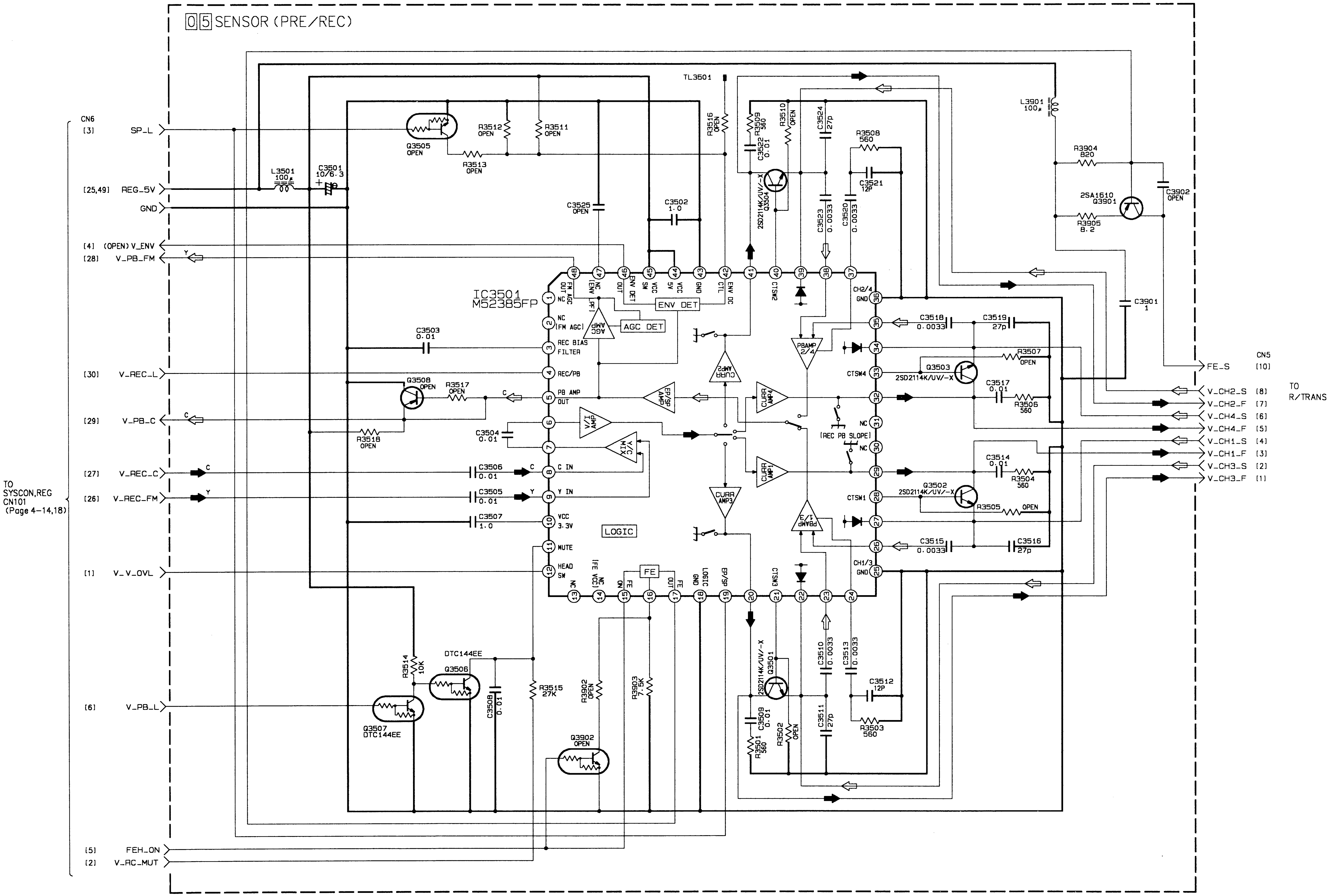

14
8
C5205
C5234
R5239
C5206
C5213
C5211
R5240
D5201
CN301
C5201
R5201
C5204
R5204
R5227
C5217
C5216
R5212
C5220
C5202
L5207
L5206
L5204
R5238
R5214
R5222
R5213
1
7
C5215
Q5203
L5201
C5226
C5218
C5209
R5215
C5230
35
C5219
C5224
C5223
R5233
R5232
L5208
C5236
C5210
1
8
IC5203
4
5
R5209
L5205
Q5204
R5216
R5208
CN302
1
0 3 CCD PWB
YB10175-01-03
A
B
1
2

4.16 MDA SCHEMATIC DIAGRAM


05 SENSOR (MDA)
TO SYSCON CN101 (Page 4–13,14)
CN6
[15] SYS_MODE
[14] CAP_REF
[37] CAP_BRK
[12] CAP_FW_L
[19] CAP_FG
[16] LOAD_FW
[17] LOAD_RV
TO LOADING MOTOR
CN4
[1] LOAD_FWD
[2] LOAD_REV
CN6
[43,44] LM_UNREG
TO REG CN101 (Page 4–18)
[47,48] GND
[25] REG_5V
[35] CAP_ERR
[20,21] CAP_PWR
[45,46] DR_UNREG
[22,23] MTR_GND
TO SYSCON CN101 (Page 4–13)
[13] DRUM_ON
[11] DRUM_REF
IC1701 BA6417F
C1701 OPEN
C1702 1.0
QA1701 OPEN
R1702 68K
R1701 15K
WF2
C1662 10/6.3
C1661 OPEN
R1656 100K
R1655 1K
C1660 0.1
C1657 0.1
R1657 15K
IC1651 BA6862FS
FG(−) FGOUT VCC PS F/R BRAKE PCV PCI TL ECR EC MODE ERR VM EMG GND
FG(+) RCH RCC HG.W(−) HG.W(+) HG.V(−) HG.V(+) HG.U(−) HG.U(+) COIL.UH COIL.VH COIL.WH COIL.U COIL.V COIL.W RNF
C1656 0.022
C1655 0.022
C1654 0.022
C1664 0.022
C1659 0.1
C1665 0.022
C1658 0.1
R1653 100K
R1654 11K
R1652 150K
R1651 470K
R1650 10K
R1661 100K
C1663 4.7/6.3
C1653 0.22
C1652 0.22
C1651 0.22
R1662 0.681/2W
QA1651 MDC02
Q1 ON3120010
Q2 ON3120010
SW1 NSW0037-001X
SW2 NSW0036-001X
SW3 OPEN
Q4 PN207-/NCLF/VI
Q3 PN207-/NCLF/VI
D1 LN57-/LF/VI
CN6
CAP_EMG [39]
CAS_SW [18]
A_SAF_SW [40]
SVHS_SW(OPEN) [24]
TO SYSCON CN101 (Page 4–13,14)
EN_SENS [38]
STR_SENS [36]
REEL_LED [7]
TAPE_LED [8]
TU_SENS [9]
SUP_SENS [10]
LED_GND [50]
TO REG,CN101 (Page 4–18)
CN3
TO CAPSTAN MOTOR
FG− [1]
GND [2] MR_GND
FG+ [3]
REG_5V [4] MR_5V
COIL_U [5,6]
COIL_V [7,8]
HG_W− [9]
COIL_W [10,11]
HG_U− [12]
HG_BS− [13]
HG_BS+ [14]
HG_U+ [15]
HG_W+ [16]
HG_V+ [17]
HG_V− [18]
R1659 1K
R1658 1K
CN6
AMP_VCC (REG_5V) [49]
TO REG,CN101 (Page 4–18)
C1604 1.0
C1606 1.0
C1605 1.0
CN1
TO DRUM MOTOR
D_COIL_U [1,2]
D_COIL_V [3,4]
D_COIL_W [5,6]
CENTER [7]
D_FG− [8]
D_PG− [10]
VREF [9]
CN6
VREF [34]
TO SYSCON CN101 (Page 4–13,14)
DRUM_PG [41]
DRUM_FG [42]
C1621 220P
C1610 330P
C1607 0.022
C1608 0.022
C1609 0.022
C1622 OPEN
C1611 0.047
C1603 0.0047
C1602 0.0047
C1601 0.0047
STB HSL FR BR FC SL1 SL2 SL3 GND1 PCV Uin Vin Win Vsc CS U
Vcc IN2(+) OUT2 IN1(−) IN1(+) COMMON OUT1 Vref PCI VS VB CS W GND2 V GND2
IC1601 AN3861SA
C1628 OPEN
C1615 22/6.3
C1612 0.01
C1613 1.0
R1504 1K
R1505 1K
R1606 0.33
C1614 OPEN
WF1
IC1602 XRA10324AF
R1607 10k
C1616 0.033
R1608 1.5K
C1617 0.47/25
C1625 0.01
R1609 150K
R1602 4.7K
R1601 100K
C1618 330P
R1610 1K
C1619 10/6.3
C1624 0.001
R1603 10K
C1627 OPEN
C1626 OPEN
C1620 10/6.3
C1623 0.01
5 4 3 2 1
A B C D E F G H

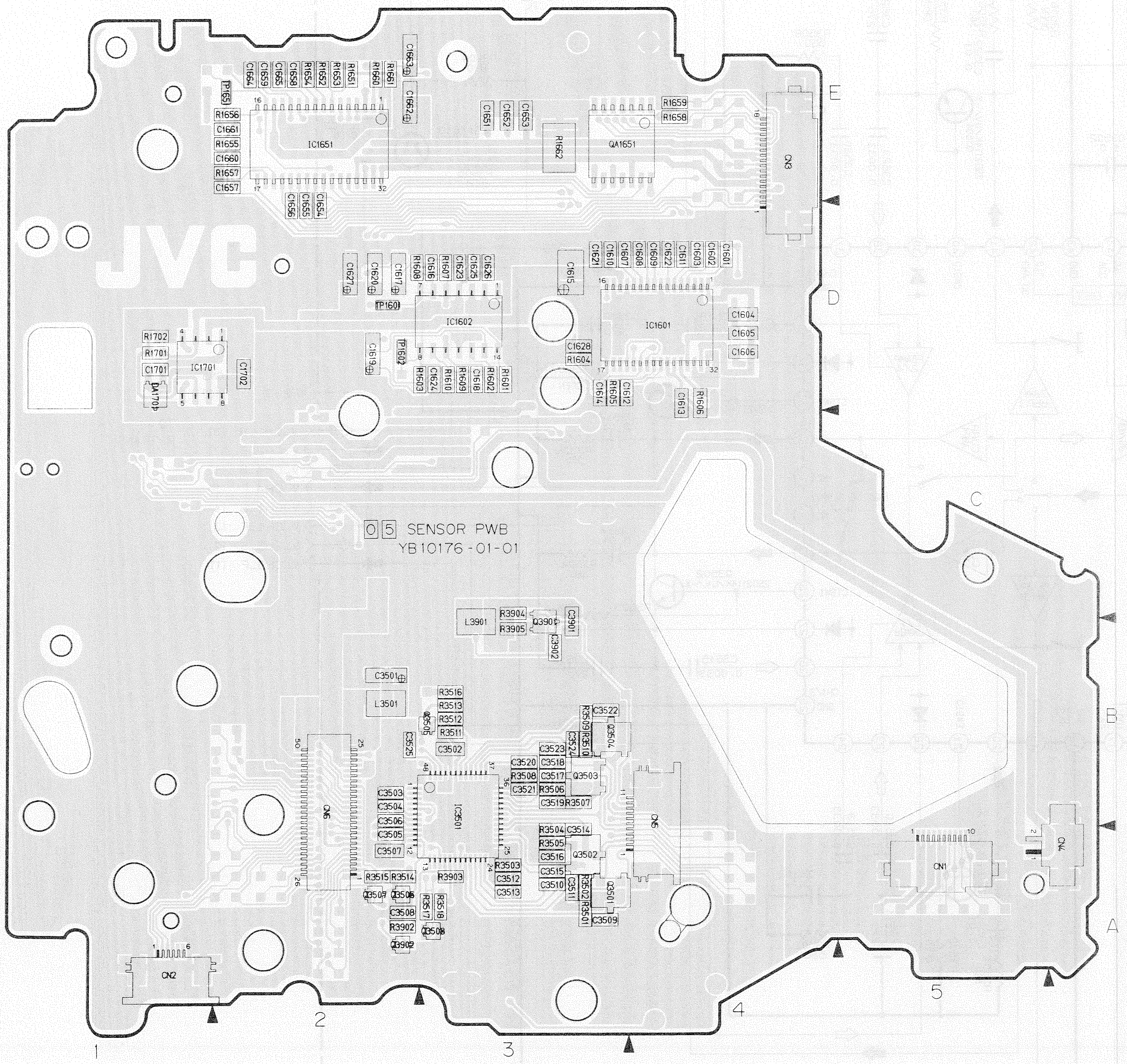
NOTE: For MDA waveforms, please refer to page 4–52.

4.17 PRE/REC SCHEMATIC DIAGRAM

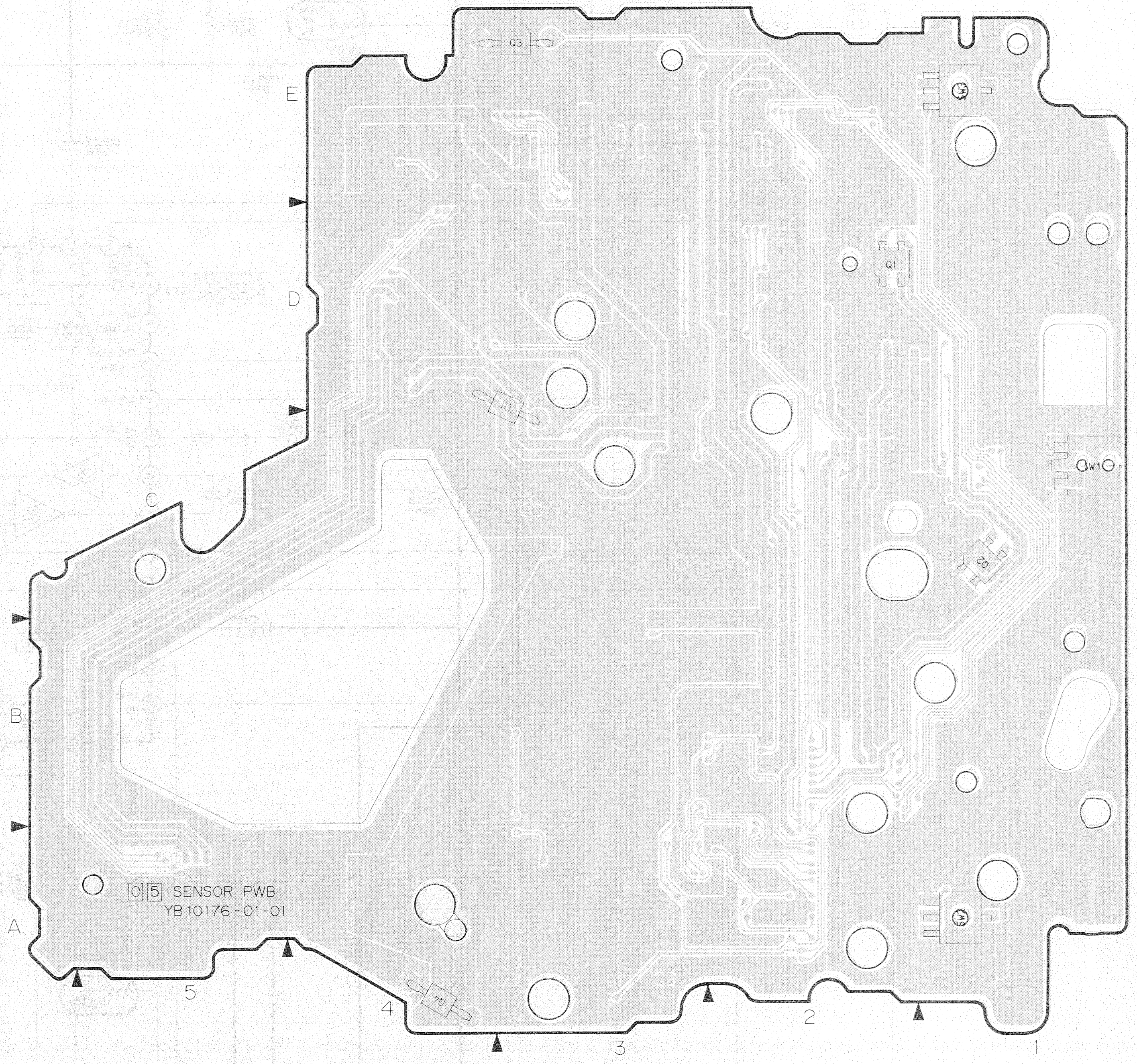

05 SENSOR (PRE/REC)
CN6
[3] SP_L
[25,49] REG_5V
GND
[4] (OPEN) V_ENV
[28] V_PB_FM
[30] V_REC_L
[29] V_PB_C
[27] V_REC_C
[26] V_REC_FM
[1] V_V_OVL
[6] V_PB_L
[5] FEH_ON
[2] V_RC_MUT
TO
SYSCON,REG
CN101
(Page 4-14,18)
IC3501
M52385FP
L3501 100μ
C3501 10/6.3
Q3505 OPEN
R3512 OPEN
R3511 OPEN
R3513 OPEN
C3525 OPEN
C3502 1.0
TL3501
R3516 OPEN
R3509 560
C3522 0.01
R3510 OPEN
C3524 27p
2SD2114K/UV/-X Q3504
C3523 0.0033
C3520 0.0033
R3508 560
C3521 12P
L3901 100μ
R3904 820
2SA1610 Q3901
R3905 8.2
C3902 OPEN
C3901 1
C3503 0.01
Q3508 OPEN
R3517 OPEN
R3518 OPEN
C3504 0.01
C3506 0.01
C3505 0.01
C3507 1.0
ENV DET
AGC DET
AGC AMP
EP/SP AMP
V/I AMP
Y/C MIX
CURR AMP1
CURR AMP2
CURR AMP3
CURR AMP4
PBAMP 2/4
PBAMP 1/3
LOGIC
FE
NC
[FM AGC]
REC BIAS FILTER
REC/PB
PB AMP OUT
C IN
Y IN
VCC 3.3V
MUTE
HEAD SW
CH2/4 GND
CH1/3 GND
CTSW2
CTSW4
CTSW1
CTSW3
[REC PB SLOPE]
C3518 0.0033
C3519 27p
R3507 OPEN
Q3503 2SD2114K/UV/-X
C3517 0.01
R3506 560
C3514 0.01
R3504 560
Q3502 2SD2114K/UV/-X
R3505 OPEN
C3515 0.0033
C3516 27p
CN5
FE_S [10]
V_CH2_S [8]
V_CH2_F [7]
V_CH4_S [6]
V_CH4_F [5]
V_CH1_S [4]
V_CH1_F [3]
V_CH3_S [2]
V_CH3_F [1]
TO R/TRANS
R3514 10K
DTC144EE
Q3506
C3508 0.01
Q3507 DTC144EE
R3515 27K
R3902 OPEN
R3903 7.5K
Q3902 OPEN
2SD2114K/UV/-X Q3501
C3509 0.01
R3501 560
R3502 OPEN
C3510 0.0033
C3513 0.0033
C3511 27p
C3512 12P
R3503 560
Y
C

4.18 SENSOR CIRCUIT BOARD

-FOIL SIDE (B)-


JVC
05 SENSOR PWB
YB10176-01-01
IC1651
QA1651
IC1602
IC1601
IC1701
IC3501
CN1
CN2
CN4
CN5
CN6
CN9
L3901
L3501
TP1601
TP1602
R1656
C1661
R1655
C1660
R1657
C1657
R1659
R1658
R1662
R1702
R1701
C1701
C1702
C1604
C1605
C1606
C1628
R1604
C3501
C3502
C3503
C3504
C3505
C3506
C3507
C3509
R3904
R3905
Q3901
C3901
C3902
R3903
R3902
Q3501
Q3502
Q3503
A
B
C
D
E
1
2
3
4
5

-COMPONENT SIDE (A)-


05 SENSOR PWB
YB10176-01-01
Q1
Q2
Q3
Q4
SW1
A
B
C
D
E
1
2
3
4
5

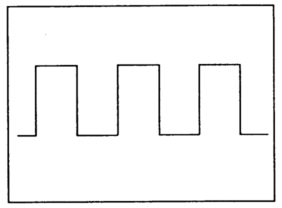
COMPONENT PARTS LOCATION GUIDE <SENSOR>

REF.No.	LOCATION		
CAPACITOR			
C1601	B	C	4D
C1602	B	C	4D
C1603	B	C	4D
C1604	B	C	4D
C1605	B	C	4D
C1606	B	C	4D
C1607	B	C	3D
C1608	B	C	4D
C1609	B	C	4D
C1610	B	C	3D
C1611	B	C	4D
C1612	B	C	3D
C1613	B	C	4D
C1614	B	C	3D
C1615	B	C	3D
C1616	B	C	3D
C1617	B	C	2D
C1618	B	C	3D
C1619	B	C	2D
C1620	B	C	2D
C1621	B	C	3D
C1622	B	C	4D
C1623	B	C	3D
C1624	B	C	3D
C1625	B	C	3D
C1626	B	C	3D
C1627	B	C	2D
C1628	B	C	3D
C1651	B	C	3E
C1652	B	C	3E
C1653	B	C	3E
C1654	B	C	2E
C1655	B	C	2E
C1656	B	C	2E
C1657	B	C	2E
C1658	B	C	2E
C1659	B	C	2E
C1660	B	C	2E
C1661	B	C	2E
C1662	B	C	2E
C1663	B	C	2E
C1664	B	C	2E
C1665	B	C	2E
C1701	B	C	1D
C1702	B	C	2D
C3501	B	C	2B
C3502	B	C	3B
C3503	B	C	2B
C3504	B	C	2B
C3505	B	C	2B
C3506	B	C	2B
C3507	B	C	2B
C3508	B	C	2A
C3509	B	C	3A
C3510	B	C	3A
C3511	B	C	3A
C3512	B	C	3A
C3513	B	C	3A
C3514	B	C	3B
C3515	B	C	3A
C3516	B	C	3B
C3517	B	C	3B
C3518	B	C	3B
C3519	B	C	3B
C3520	B	C	3B
C3521	B	C	3B
C3522	B	C	3B
C3523	B	C	3B
C3524	B	C	3B
C3525	B	C	2B
C3901	B	C	3C
C3902	B	C	3C
CONNECTOR			
CN1	B	C	5B
CN2	B	C	1A
CN3	B	C	4E
CN4	B	C	5B
CN5	B	C	4B
CN6	B	C	2A
DIODE			
D1	A	D	3D
DA1701	B	C	1D
IC			
IC1601	B	C	4D
IC1602	B	C	3D
IC1651	B	C	2E
IC1701	B	C	1D
IC3501	B	C	3B
COIL			
L3501	B	C	2B
L3901	B	C	3C
TRANSISTOR			
Q1	A	C	2D
Q2	A	C	1C
Q3	A	D	3E
Q4	A	D	4A
Q3501	B	C	3A
Q3502	B	C	3B
Q3503	B	C	3B
Q3504	B	C	3B
Q3505	B	C	3B
Q3506	B	C	2A
Q3507	B	C	2A
Q3508	B	C	3A
Q3901	B	C	3C
Q3902	B	C	2A
QA1651	B	C	3E
RESISTOR			
R1601	B	C	3D
R1602	B	C	3D
R1603	B	C	2D
R1604	B	C	3D
R1605	B	C	3D
R1606	B	C	4D
R1607	B	C	3D
R1608	B	C	2D
R1609	B	C	3D
R1610	B	C	3D
R1651	B	C	2E
R1652	B	C	2E
R1653	B	C	2E
R1654	B	C	2E
R1655	B	C	2E
R1656	B	C	2E
R1657	B	C	2E
R1658	B	C	4E
R1659	B	C	4E
R1660	B	C	2E
R1661	B	C	2E
R1662	B	C	3E
R1701	B	C	1D
R1702	B	C	1D
R3501	B	C	3A
R3502	B	C	3A
R3503	B	C	3A
R3504	B	C	3B
R3505	B	C	3B
R3506	B	C	3B
R3507	B	C	3B
R3508	B	C	3B
R3509	B	C	3B
R3510	B	C	3B
R3511	B	C	3B
R3512	B	C	3B
R3513	B	C	3B
R3514	B	C	2A
R3515	B	C	2A
R3516	B	C	3B
R3517	B	C	3A
R3518	B	C	3A
R3902	B	C	2A
R3903	B	C	3A
R3904	B	C	3C
R3905	B	C	3C
SWITCH			
SW1	A	C	1C
SW2	A	C	1A
SW3	A	C	1E
TEST POINT			
TP1601	B	C	2D
TP1602	B	C	2D
TP1651	B	C	2E

4.19 WAVEFORMS

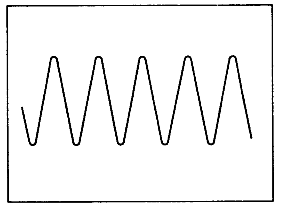
– SYSCON –

WF1 IC101-89



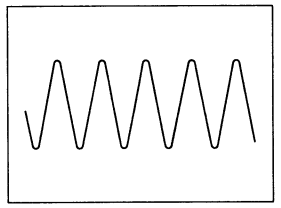
REC/PB 3.2 Vp-p
0.1V/5msec/DIV

WF2 IC101-90



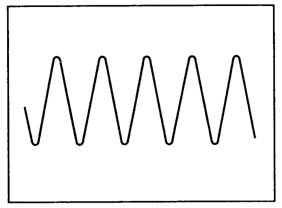
REC/PB 0.6 Vp-p
50mV/2msec/DIV

WF3 IC101-91



REC/PB 3.3 Vp-p
0.1V/0.5msec/DIV

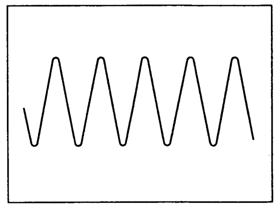
WF2 IC1651-15



REC/PB 3.2 Vp-p
0.1V/0.5msec/DIV

– MDA –

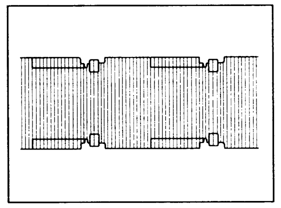
WF1 IC1602-7



REC/PB 0.6 Vp-p
50mV/2msec/DIV

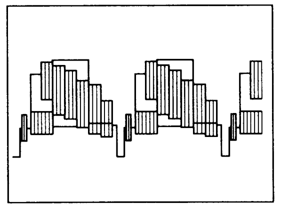
– PROCESS & Y/C –

WF1 IC3001-39



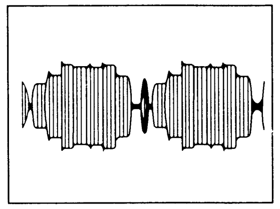
REC 0.24 Vp-p
10mV/5msec/DIV

WF2 IC3001-50



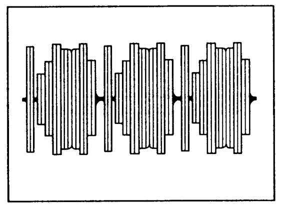
REC/PB 1.7 Vp-p
50mV/20μsec/DIV

WF3 IC3001-57



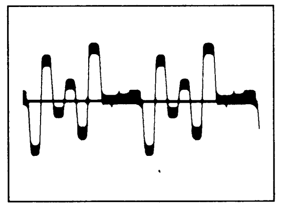
PB 0.5 Vp-p
20mV/20μsec/DIV

WF4 IC3001-60



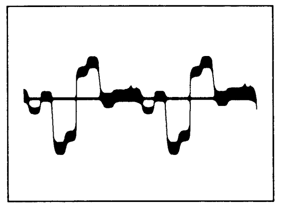
REC 0.3 Vp-p
10mV/20μsec/DIV

WF5 IC3001-94



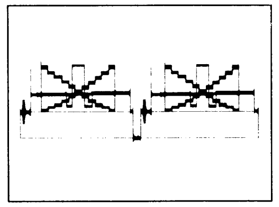
EE 0.3 Vp-p
20mV/20μsec/DIV

WF6 IC3001-96



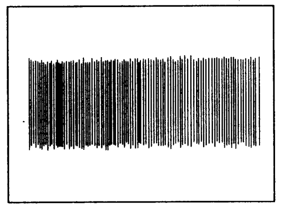
EE 0.3 Vp-p
20mV/20μsec/DIV

WF7 IC3001-116



EE 0.8 Vp-p
20mV/10μsec/DIV

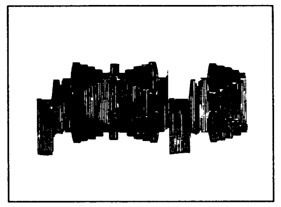
WF8 IC3003-8



PB 0.4 Vp-p
20mV/1msec/DIV

– CCD –

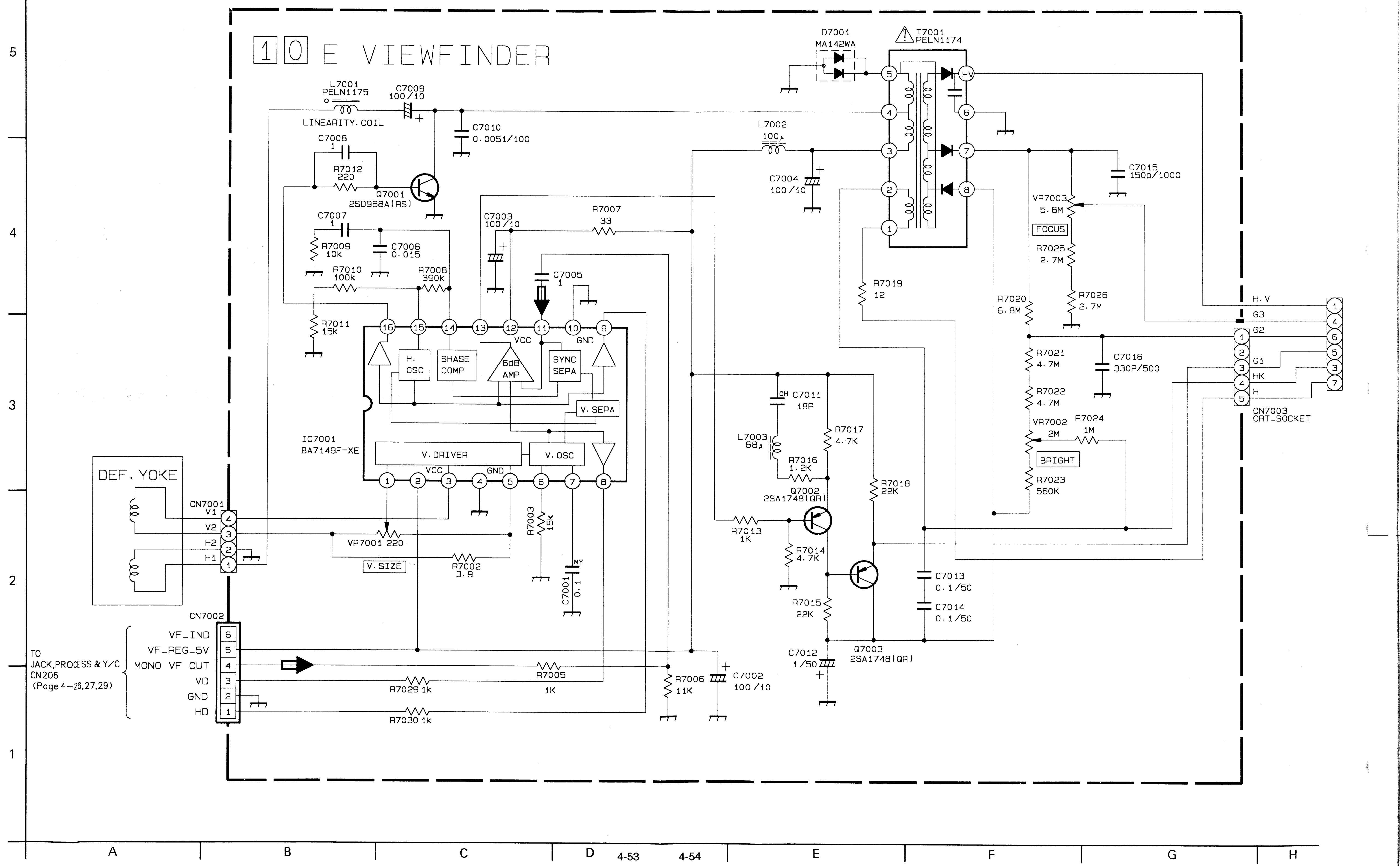
WF1 CN301-4



EE 0.9 Vp-p
20mV/10μsec/DIV

4.20 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM for AX270/275/470EG

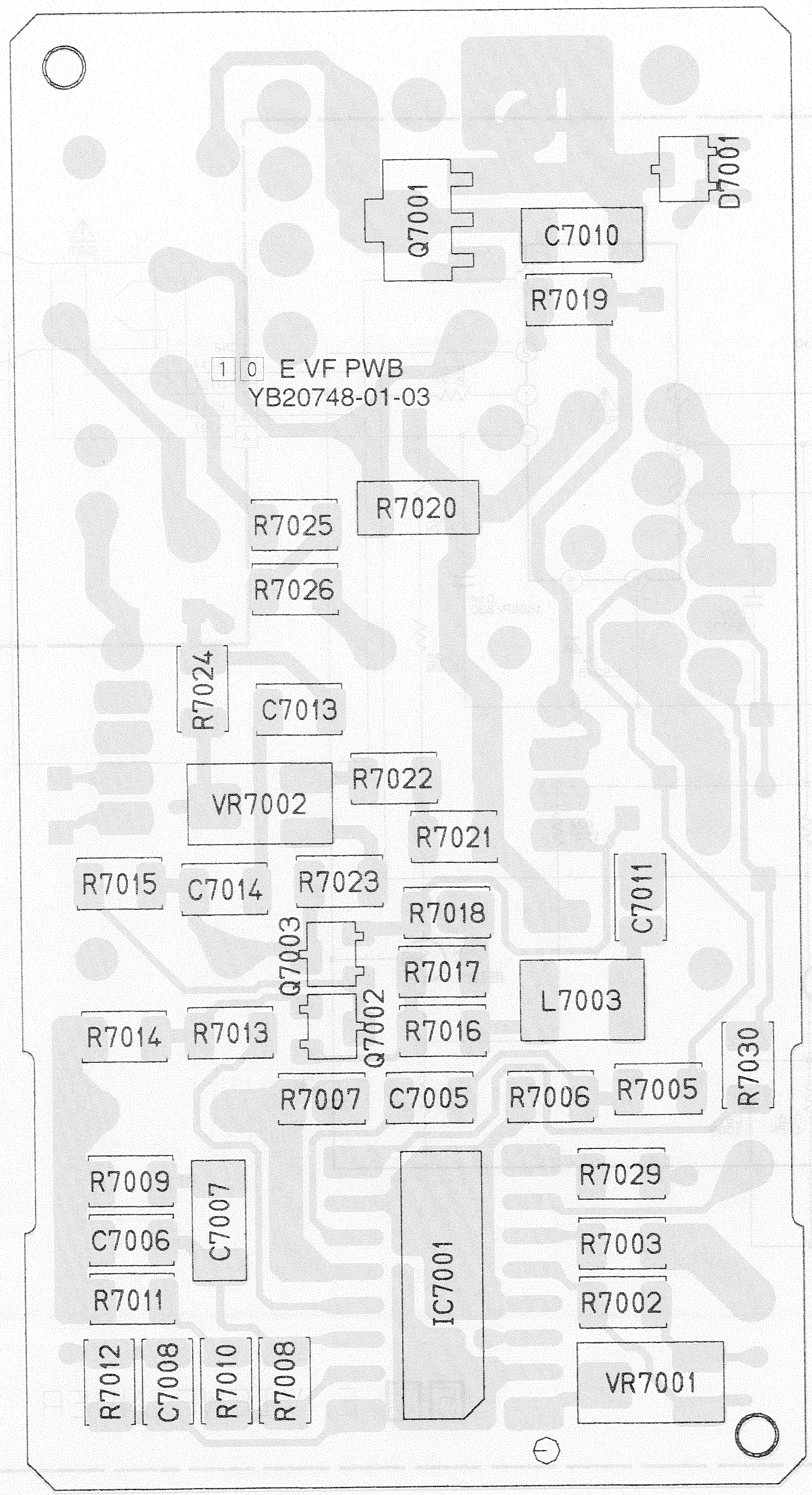
(TYPE T)


10 E VIEWFINDER
L7001 PELN1175
LINEARITY. COIL
C7009 100/10
C7010 0.0051/100
C7008 1
R7012 220
Q7001 2SD968A(RS)
C7007 1
R7009 10k
C7006 0.015
R7010 100k
R7008 390k
R7011 15k
C7003 100/10
R7007 33
C7005 1
IC7001 BA7149F-XE
H. OSC
SHASE COMP
6dB AMP
SYNC SEPA
V. SEPA
V. DRIVER
V. OSC
VCC
GND
DEF. YOKE
CN7001
V1
V2
H2
H1
VR7001 220
V. SIZE
R7002 3.9
R7003 15k
C7001 0.1 MY
CN7002
VF_IND
VF_REG_5V
MONO VF OUT
VD
GND
HD
TO JACK,PROCESS & Y/C CN206 (Page 4-26,27,29)
R7005 1K
R7029 1k
R7030 1k
R7006 11K
C7002 100/10
D7001 MA142WA
T7001 PELN1174
HV
L7002 100µ
C7004 100/10
R7013 1K
C7011 18P CH
L7003 68µ
R7016 1.2K
Q7002 2SA1748(QR)
R7014 4.7K
R7015 22K
C7012 1/50
R7017 4.7K
R7018 22K
Q7003 2SA1748(QR)
R7019 12
C7013 0.1/50
C7014 0.1/50
R7020 6.8M
C7015 150p/1000
VR7003 5.6M
FOCUS
R7025 2.7M
R7026 2.7M
R7021 4.7M
C7016 330P/500
R7022 4.7M
VR7002 2M
R7024 1M
BRIGHT
R7023 560K
H.V
G3
G2
G1
HK
H
CN7003 CRT_SOCKET
5
4
3
2
1
A
B
C
D
E
F
G
H

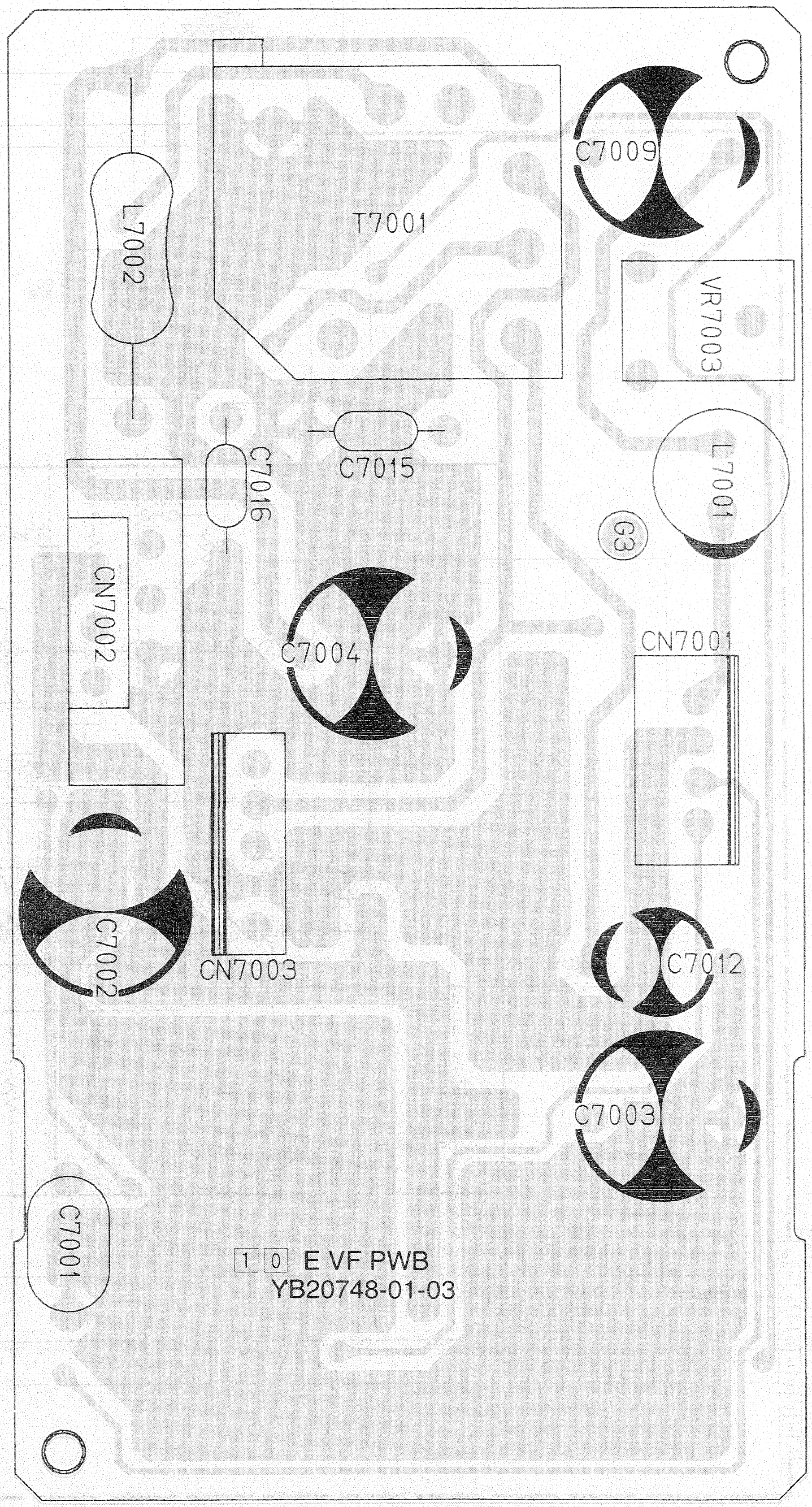
4.21 ELECTRONIC VIEWFINDER CIRCUIT BOARD for AX270/275/470EG

(TYPE T)

FOIL SIDE (B)

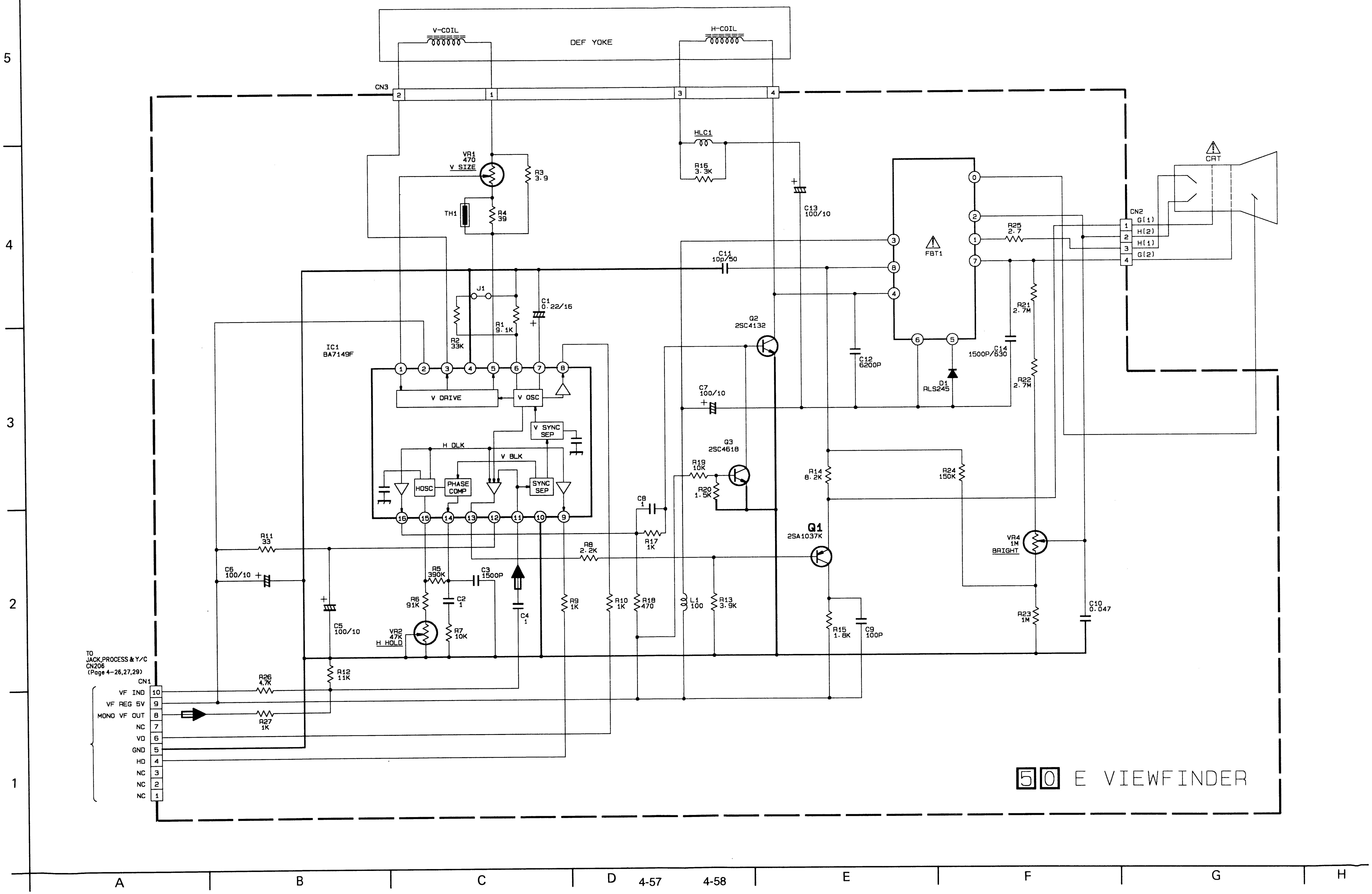

Q7001
D7001
C7010
R7019
1 0 E VF PWB
YB20748-01-03
R7025
R7020
R7026
R7024
C7013
VR7002
R7022
R7021
R7015
C7014
R7023
R7018
C7011
Q7003
R7017
L7003
R7014
R7013
Q7002
R7016
R7030
R7007
C7005
R7006
R7005
R7009
C7007
R7029
C7006
IC7001
R7003
R7011
R7002
R7012
C7008
R7010
R7008
VR7001

COMPONENT SIDE (A)


C7009
L7002
T7001
VR7003
C7016
C7015
L7001
G3
CN7002
C7004
CN7001
C7002
CN7003
C7012
C7003
C7001
1 0 E VF PWB
YB20748-01-03

4.22 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM for AX270/275/470EG

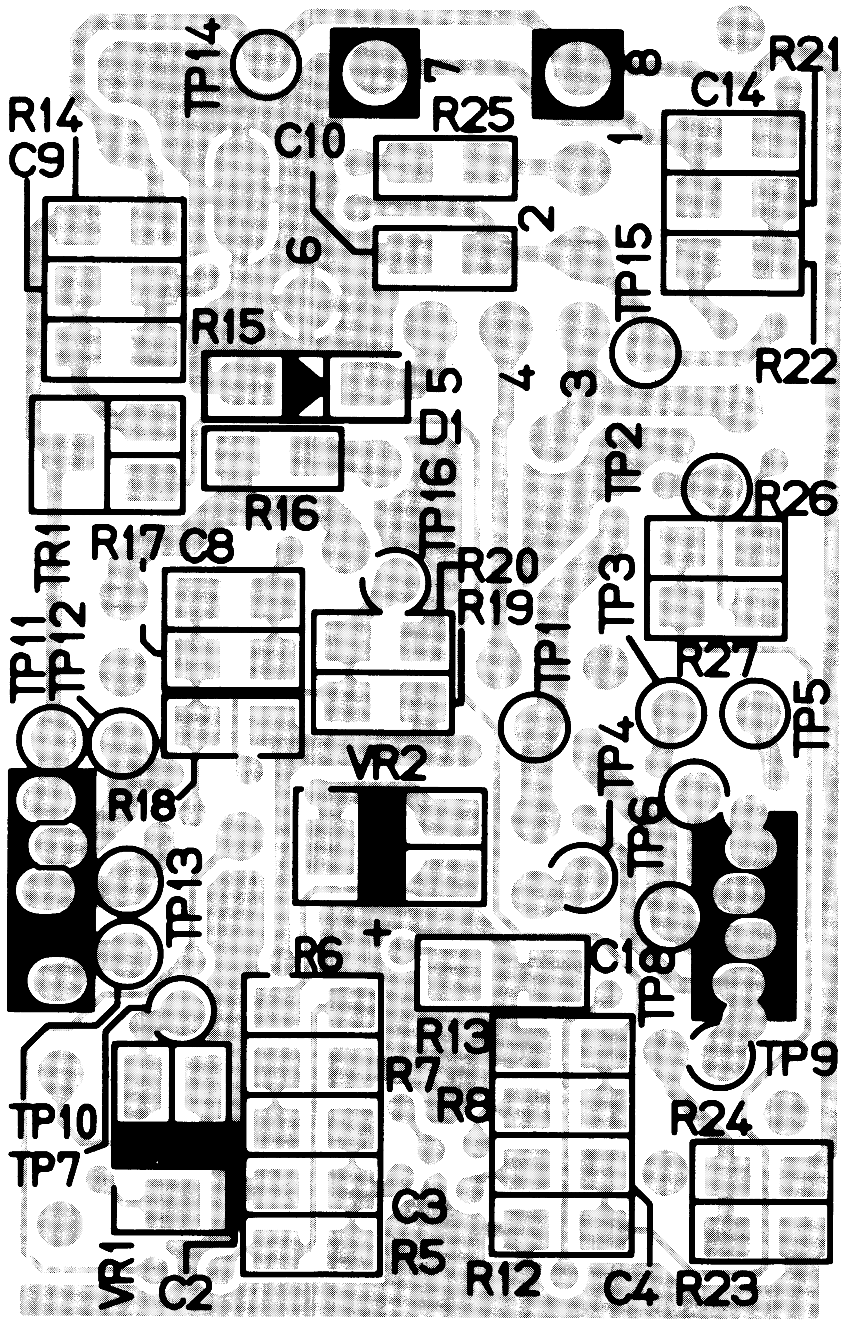
(TYPE M)


V-COIL
DEF YOKE
H-COIL
CN3
HLC1
R16 3.3K
C13 100/10
VR1 470 V SIZE
R3 3.9
TH1
R4 39
CRT
CN2
G(1)
H(2)
H(1)
G(2)
R25 2.7
FBT1
C11 10p/50
J1
C1 0.22/16
R1 9.1K
R2 33K
IC1 BA7149F
Q2 2SC4132
R21 2.7M
C14 1500P/630
C12 6200P
D1 RLS245
R22 2.7M
V DRIVE
V OSC
V SYNC SEP
H DLK
V BLK
HOSC
PHASE COMP
SYNC SEP
C7 100/10
Q3 2SC4618
R19 10K
R20 1.5K
R14 8.2K
R24 150K
C8 1
R17 1K
Q1 2SA1037K
R11 33
R8 2.2K
VR4 1M BRIGHT
C6 100/10
R5 390K
C3 1500P
C2 1
R6 91K
VR2 47K H HOLD
R7 10K
C4 1
C5 100/10
R9 1K
R10 1K
R18 470
L1 100
R13 3.9K
R15 1.8K
C9 100P
R23 1M
C10 0.047
TO JACK,PROCESS & Y/C CN206 (Page 4-26,27,29)
CN1
VF IND
VF REG 5V
MONO VF OUT
NC
VD
GND
HD
NC
NC
NC
R26 4.7K
R12 11K
R27 1K
50 E VIEWFINDER
1
2
3
4
5
A
B
C
D
E
F
G
H

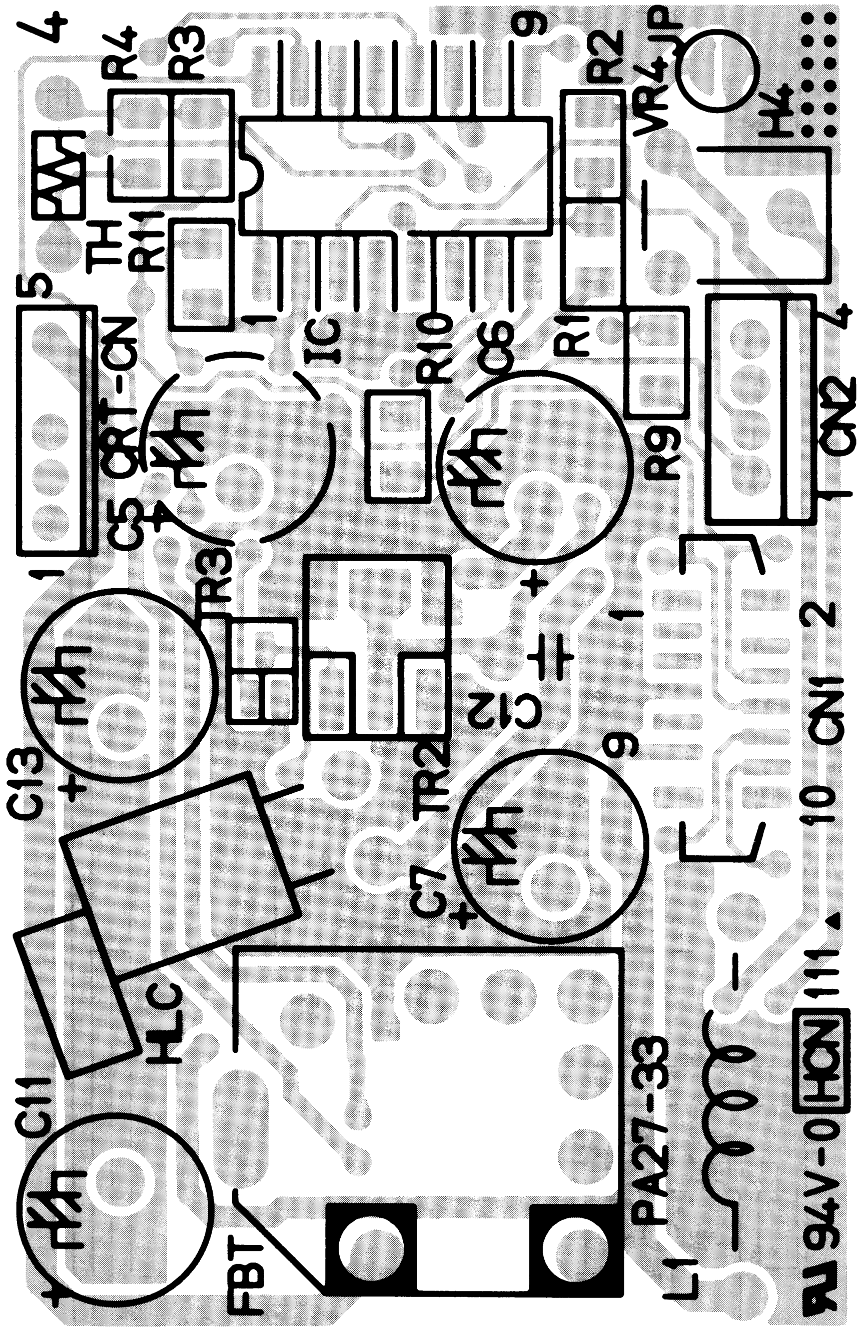
4.23 ELECTRONIC VIEWFINDER CIRCUIT BOARD for AX270/275/470EG

(TYPE M)

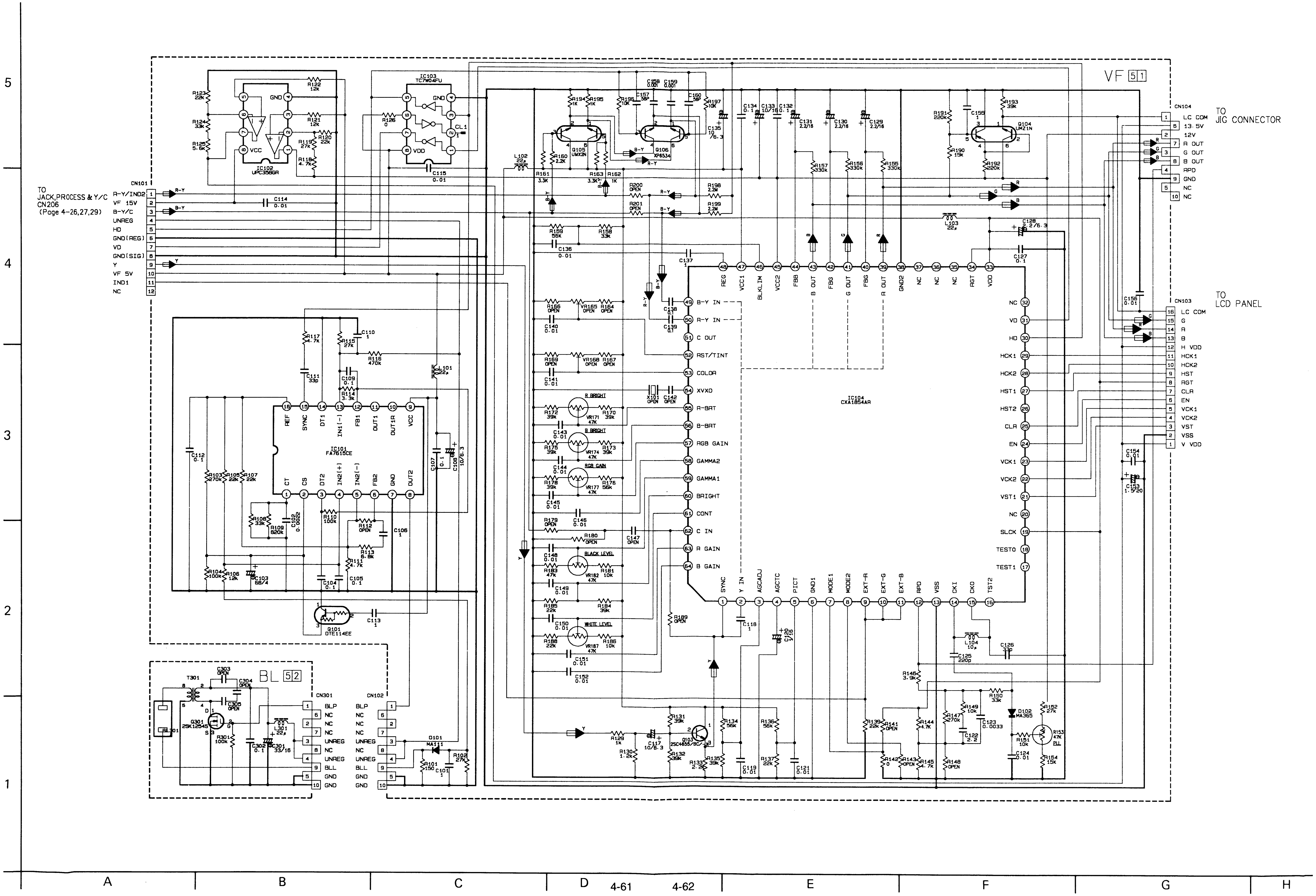
FOIL SIDE (B)


TP14
7
8
R21
R14
C9
C10
R25
C14
1
2
6
TP15
R15
R22
5
4
3
D1
TP16
TP2
R26
R16
TR1
R17
C8
R20
R19
TP3
TP11
TP12
TP1
R27
TP4
TP5
VR2
R18
TP6
TP13
R6
C1
TP8
R13
R7
R8
TP9
TP10
TP7
R24
C3
R5
VR1
C2
R12
C4
R23

COMPONENT SIDE (A)

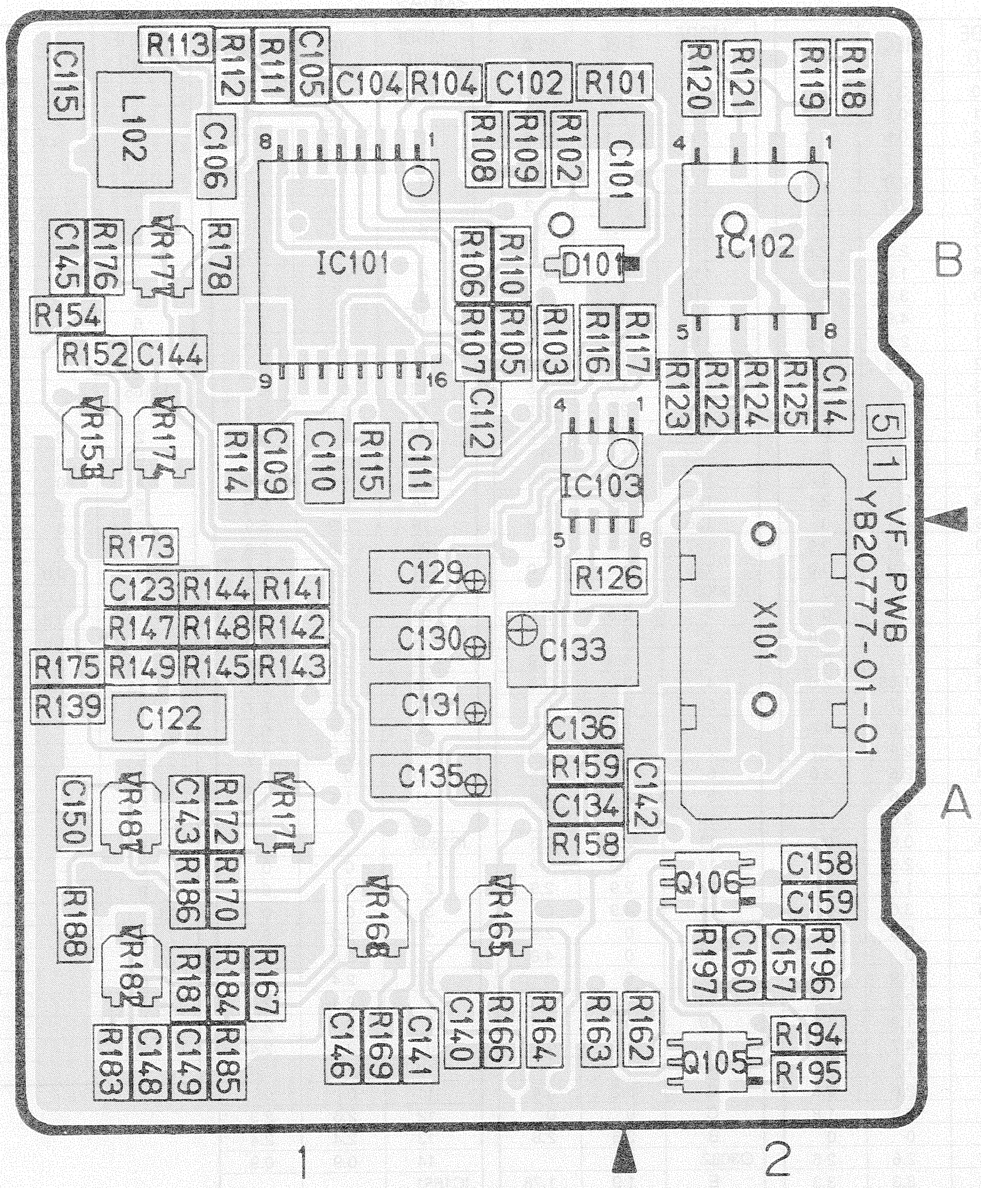

4
R4
R3
9
R2
VR4
JP
H4
TH
R11
5
CRT-CN
1
IC
R10
C6
R1
4
CN2
1
C5
R9
TR3
1
2
CN1
10
C12
C13
TR2
9
C7
HLC
C11
PA27-33
FBT
L1
94V-0
HCN
111

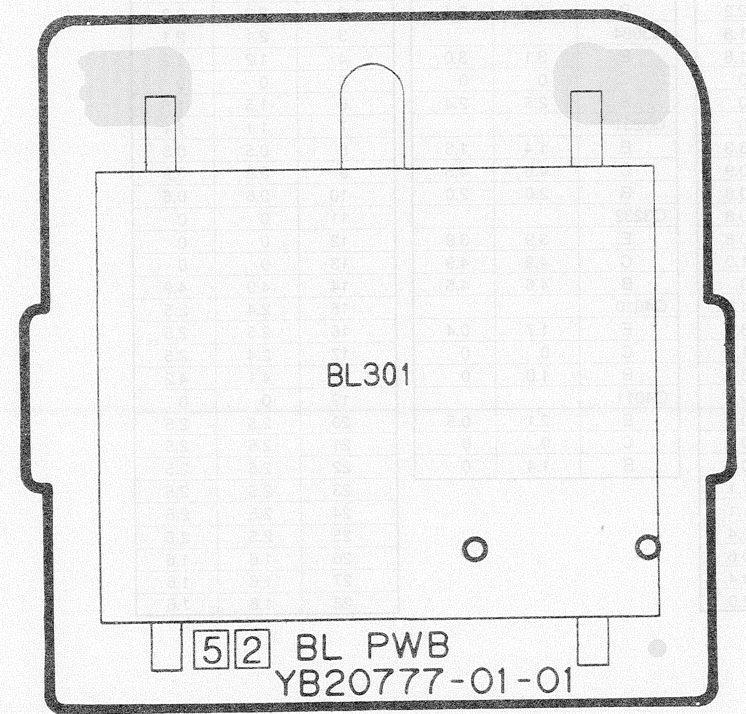
4.24 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM for AX370EG


VF 51
BL 52
TO JACK,PROCESS & Y/C CN206 (Page 4-26,27,29)
CN101
R-Y/IND2
VF 15V
B-Y/C
UNREG
HD
GND(REG)
VD
GND(SIG)
Y
VF 5V
IND1
NC
TO JIG CONNECTOR
CN104
LC COM
13.5V
12V
R OUT
G OUT
B OUT
RPD
GND
NC
TO LCD PANEL
CN103
LC COM
G
R
B
H VDD
HCK1
HCK2
HST
RGT
CLR
EN
VCK1
VCK2
VST
VSS
V VDD
IC102 UPC358GR
IC103 TC7W04FU
IC101 FA7615CE
IC104 CXA1854AR
Q101 DTE114EE
Q103 2SC4655/9C/-
Q104 UMZ1N
Q105 UMX2N
Q106 XP6534
Q301 2SK1254S
D101 MA111
D102 MA365
T301
CN301
CN102
BLP
NC
UNREG
BLL
GND
R BRIGHT
B BRIGHT
RGB GAIN
BLACK LEVEL
WHITE LEVEL
PLL
REG
VCC1
BLKLIM
VCC2
FBB
B OUT
FBG
G OUT
FBR
R OUT
GND2
RGT
VDD
B-Y IN
R-Y IN
C OUT
RST/TINT
COLOR
XVXO
R-BRT
B-BRT
RGB GAIN
GAMMA2
GAMMA1
BRIGHT
CONT
C IN
R GAIN
B GAIN
SYNC
Y IN
AGCADJ
AGCTC
PICT
GND1
MODE1
MODE2
EXT-R
EXT-G
EXT-B
RPD
VSS
CKI
CKO
TST2
VD
HD
HCK1
HCK2
HST1
HST2
CLR
EN
VCK1
VCK2
VST1
SLCK
TEST0
TEST1
REF
SYNC
DT1
IN1(-)
FB1
OUT1
OUT1R
VCC
CT
CS
DT2
IN2(+)
IN2(-)
FB2
GND
OUT2
A
B
C
D
E
F
G
H
1
2
3
4
5

4.25 ELECTRONIC VIEWFINDER CIRCUIT BOARDS for AX370EG

–FOIL SIDE (B)–


5 1 VF PWB
YB20777-01-01
C115
R113
R112
R111
C105
C104
R104
C102
R101
R120
R121
R119
R118
L102
C106
R108
R109
R102
C101
IC101
IC102
D101
C145
R176
VR177
R178
R110
R106
R154
R152
C144
R107
R105
R103
R116
R117
R123
R122
R124
R125
C114
VR153
VR174
R114
C109
C110
R115
C111
C112
IC103
X101
R173
C129
R126
C123
R144
R141
R147
R148
R142
C130
C133
R175
R149
R145
R143
R139
C122
C131
C136
R159
C142
C135
C134
R158
C150
VR187
C143
R172
VR171
R186
R170
Q106
C158
C159
R188
VR182
VR168
VR165
R197
C160
C157
R196
R181
R184
R167
R183
C148
C149
R185
C146
R169
C141
C140
R166
R164
R163
R162
Q105
R194
R195
B
A
1
2


BL301
5 2 BL PWB
YB20777-01-01

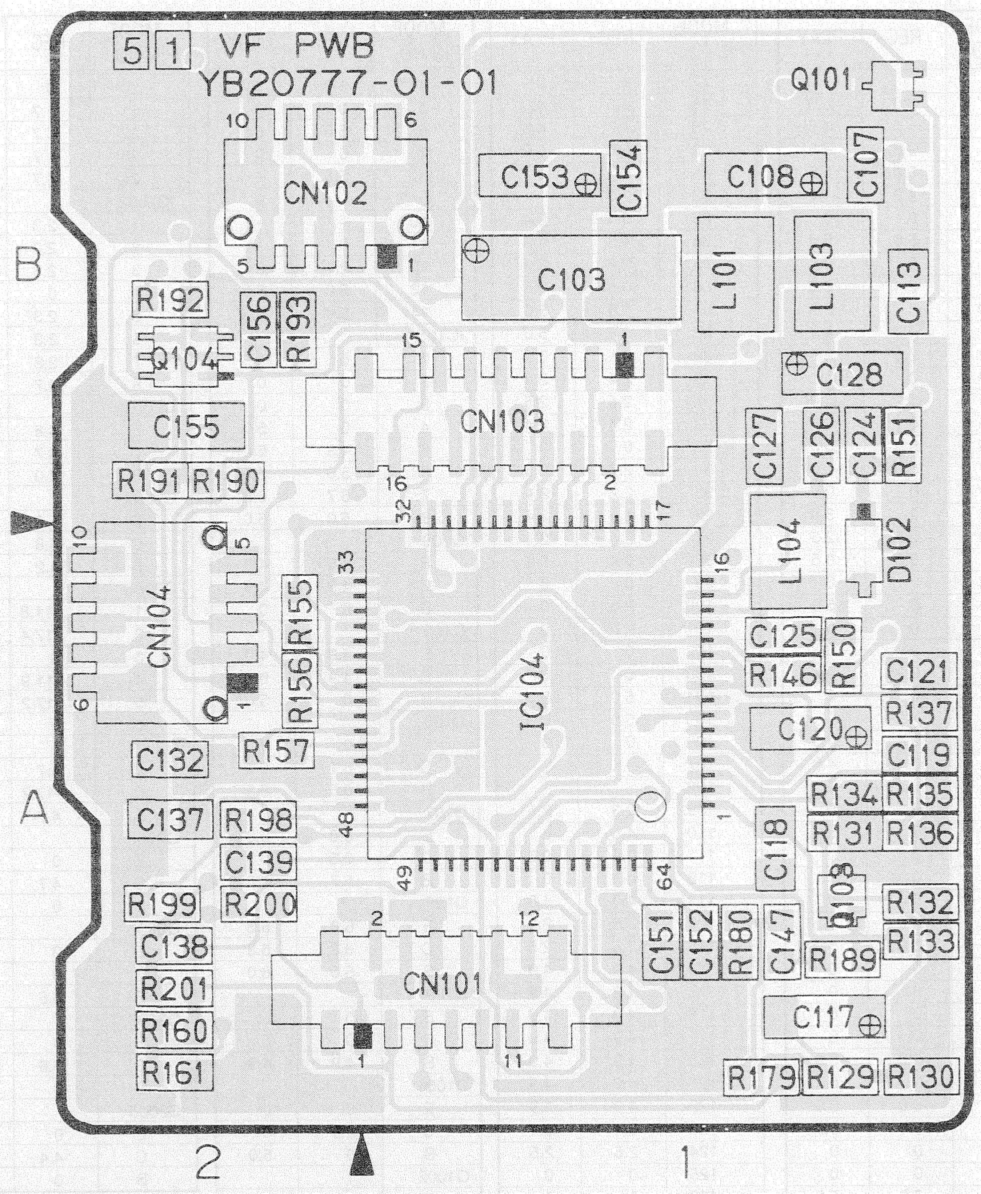
COMPONENT PARTS LOCATION GUIDE <C-VF>

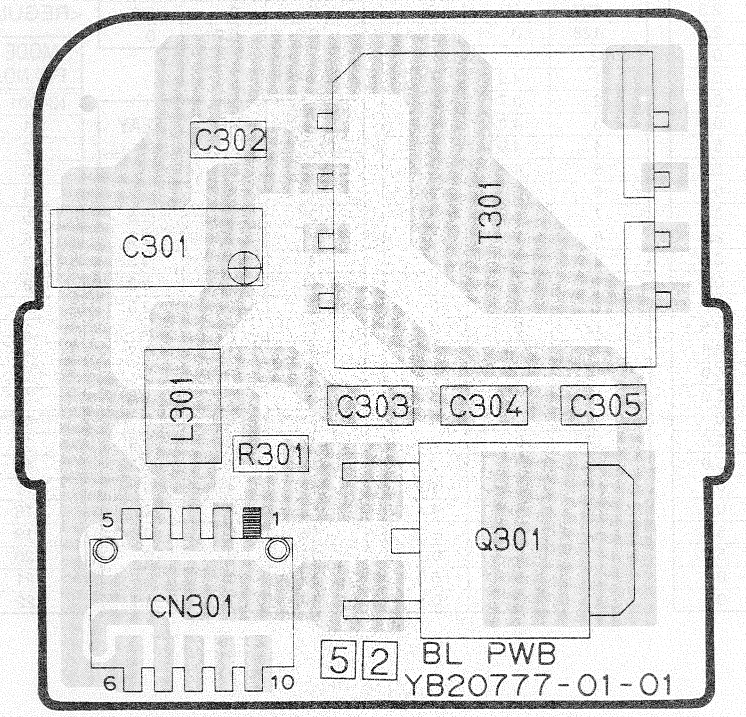
REF.No.	LOCATION		
CAPACITOR			
C101	B	C	2B
C102	B	C	1B
C103	A	C	1B
C104	B	C	1B
C105	B	C	1B
C106	B	C	1B
C107	A	C	1B
C108	A	C	1B
C109	B	C	1B
C110	B	C	1B
C111	B	C	1B
C112	B	C	1B
C113	A	C	1B
C114	B	C	2B
C115	B	C	1B
C117	A	C	1A
C118	A	C	1A
C119	A	C	1A
C120	A	C	1A
C121	A	C	1A
C122	B	C	1A
C123	B	C	1A
C124	A	C	1B
C125	A	C	1A
C126	A	C	1B
C127	A	C	1B
C128	A	C	1B
C129	B	C	1A
C130	B	C	1A
C131	B	C	1A
C132	A	C	2A
C133	B	C	1A
C134	B	C	1A
C135	B	C	1A
C136	B	C	1A
C137	A	C	2A
C138	A	C	2A
C139	A	C	2A
C140	B	C	1A
C141	B	C	1A
C142	B	C	2A
C143	B	C	1A
C144	B	C	1B
C145	B	C	1B
C146	B	C	1A
C147	A	C	1A
C148	B	C	1A
C149	B	C	1A
C150	B	C	1A
C151	A	C	1A
C152	A	C	1A
C153	A	C	1B
C154	A	C	1B
C155	A	C	2B
C156	A	C	2B
C157	B	C	2A
C158	B	C	2A
C159	B	C	2A
C160	B	C	2A
CONNECTOR			
CN101	A	C	2A
CN102	A	C	1B
CN103	A	C	1B
CN104	A	C	2A
DIODE			
D101	B	C	1B
D102	A	C	1A

REF.No.	LOCATION		
IC			
IC101	B	C	1B
IC102	B	C	2B
IC103	B	C	1B
IC104	A	C	1A
COIL			
L101	A	C	1B
L102	B	C	1B
L103	A	C	1B
L104	A	C	1A
TRANSISTOR			
Q101	A	C	1B
Q103	A	C	1A
Q104	A	C	2B
Q105	B	C	2A
Q106	B	C	2A
RESISTOR			
R101	B	C	2B
R102	B	C	1B
R103	B	C	1B
R104	B	C	1B
R105	B	C	1B
R106	B	C	1B
R107	B	C	1B
R108	B	C	1B
R109	B	C	1B
R110	B	C	1B
R111	B	C	1B
R112	B	C	1B
R113	B	C	1B
R114	B	C	1B
R115	B	C	1B
R116	B	C	1B
R117	B	C	2B
R118	B	C	2B
R119	B	C	2B
R120	B	C	2B
R121	B	C	2B
R122	B	C	2B
R123	B	C	2B
R124	B	C	2B
R125	B	C	2B
R126	B	C	1A
R129	A	C	1A
R130	A	C	1A
R131	A	C	1A
R132	A	C	1A
R133	A	C	1A
R134	A	C	1A
R135	A	C	1A
R136	A	C	1A
R137	A	C	1A
R139	B	C	1A
R141	B	C	1A
R142	B	C	1A
R143	B	C	1A
R144	B	C	1A
R145	B	C	1A
R146	A	C	1A
R147	B	C	1A
R148	B	C	1A
R149	B	C	1A
R150	A	C	1A
R151	A	C	1B
R152	B	C	1B
R154	B	C	1B
R155	A	C	2A

REF.No.	LOCATION		
R156	A	C	2A
R157	A	C	2A
R158	B	C	1A
R159	B	C	1A
R160	A	C	2A
R161	A	C	2A
R162	B	C	2A
R163	B	C	1A
R164	B	C	1A
R166	B	C	1A
R167	B	C	1A
R169	B	C	1A
R170	B	C	1A
R172	B	C	1A
R173	B	C	1A
R175	B	C	1A
R176	B	C	1B
R178	B	C	1B
R179	A	C	1A
R180	A	C	1A
R181	B	C	1A
R183	B	C	1A
R184	B	C	1A
R185	B	C	1A
R186	B	C	1A
R188	B	C	1A
R189	A	C	1A
R190	A	C	2B
R191	A	C	2B
R192	A	C	2B
R193	A	C	2B
R194	B	C	2A
R195	B	C	2A
R196	B	C	2A
R197	B	C	2A
R198	A	C	2A
R199	A	C	2A
R200	A	C	2A
R201	A	C	2A
V RESISTOR			
VR153	B	C	1B
VR165	B	C	1A
VR168	B	C	1A
VR171	B	C	1A
VR174	B	C	1B
VR177	B	C	1B
VR182	B	C	1A
VR187	B	C	1A
OTHER			
CL1	B	C	1B
X101	B	C	2A

–COMPONENT SIDE (A)–


5 1 VF PWB
YB20777-01-01
Q101
CN102
C153
C154
C108
C107
C103
L101
L103
C113
R192
C156
R193
Q104
CN103
C128
C155
C127
C126
C124
R151
R191
R190
L104
D102
CN104
R155
R156
IC104
C125
R146
R150
C121
R137
C120
C119
C132
R157
R134
R135
C137
R198
C118
R131
R136
C139
Q103
R199
R200
R132
R133
C138
CN101
C151
C152
R180
C147
R189
R201
C117
R160
R161
R179
R129
R130
B
A
2
1


C302
T301
C301
L301
C303
C304
C305
R301
Q301
CN301
5 2 BL PWB
YB20777-01-01

4.26 VOLTAGE CHARTS

<SYSCON>

MODE PIN NO.	REC	PLAY
IC101		
1	5.0	5.0
2	1.5	1.5
3	2.8	2.8
4	5.0	5.0
5	4.9	4.7
6	0	0
7	5.0	5.0
8	0	0
9	2.4	2.5
10	0	2.5
11	4.9	4.9
12	2.5	2.5
13	0	0
14	5.0	5.0
15	0	0
16	5.0	5.0
17	5.0	5.0
18	0	0
19	0	5.0
20	2.5	2.5
21	0.5	0.5
22	0	0
23	0	5.0
24	0	0
25	0	0
26	0.3	0.2
27	0	0
28	–	–
29	2.4	2.5
30	0	4.9
31	0	0
32	0	0
33	0	0
34	0	0
35	0	0
36	5.0	0
37	5.0	0
38	5.0	5.0
39	0	0
40	0	0
41	0	0
42	0	0
43	5.0	5.0
44	0	0
45	5.0	5.0
46	5.0	5.0
47	0	0
48	0	0
49	5.0	5.0
50	2.3	2.3
51	2.6	2.6
52	0	0
53	0	0
54	0.7	0.7
55	0.7	0.9
56	5.0	5.0
57	5.0	5.0
58	0	0
59	0	0
60	2.5	2.5
61	0.5	0.5
62	0.5	0.5
63	0.4	0.5
64	0.5	0.5
65	2.5	2.5
66	0	5.0
67	5.0	5.0
68	5.0	0
69	3.6	3.6
70	0	5.0
71	0	0
72	0	0
73	0	5.0
74	0	5.0
75	5.0	0
76	0	0
77	0	0
78	4.0	4.0
79	4.8	4.8
80	5.0	5.0
81	0	0
82	2.0	–
83	0.4	0.4
84	4.9	4.9
85	2.9	2.9
86	0.5	0.5
87	5.0	5.0
88	0	5.0
89	0	0.9
90	2.4	2.4
91	2.4	2.5
92	2.4	2.4
93	0	0
94	2.7	2.5
95	2.2	2.4
96	2.4	2.4
97	2.4	2.4
98	2.4	2.4
99	0	0
100	2.6	0
101	2.0	0
102	0	0
103	0	0
104	5.0	5.0
105	5.0	5.0
106	0	0
107	–	–
108	–	–
109	2.3	2.5
110	4.5	0
111	0.5	0.5
112	0	0
113	4.0	4.0
114	2.6	2.6
115	2.5	2.5
116	4.9	4.9
117	4.9	4.9
118	4.9	4.9
119	4.9	4.9
120	4.9	4.9
121	4.9	4.9
122	4.9	4.9
123	0.4	0.4
124	2.5	2.5
125	0	0
126	0	0
127	0	0
128	0	0
IC102		
1	4.9	4.9
2	3.7	3.7
3	4.0	4.1
4	4.9	4.9
5	4.9	4.9
6	0	0
7	1.9	1.9
8	1.9	1.9
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	4.9	4.9
20	4.4	4.4
IC104		
1	0	0
2	5.0	5.0
3	0.4	0.4
4	5.0	5.0
5	0	0
6	5.0	5.0
7	0	0
8	5.0	–
9	–	–
10	–	–
11	0	–
12	2.1	0
13	5.0	5.0
14	5.0	5.0
IC105		
1	0	0
2	0	0
3	0	0
4	0	5.0
5	4.9	5.0
6	5.0	5.0
7	6.7	6.8
8	5.0	5.0
Q103		
E	4.9	4.9
C	4.9	4.9
B	0	0
Q105		
E	4.9	4.9
C	4.9	0
B	0	5.0
Q106		
E	0	0
C	6.1	6.1
B	0.5	0.5
Q107		
E	6.8	6.8
C	0.5	0.5
B	6.7	6.8
Q108		
E	6.8	6.8
C	6.8	6.8
B	6.0	6.0
Q109		
E	0	0
C	0	0
B	4.9	4.9
Q1001		
E	0	0
C	2.0	0
B	0	5.0
Q1002		
E	0	0
C	0	5.0
B	0.7	0

<AUDIO>

MODE PIN NO.	REC	PLAY
IC2001		
1	1.7	1.7
2	2.3	2.3
3	2.3	2.3
4	2.3	2.3
5	2.3	2.3
6	2.3	2.3
7	0.2	0
8	1.8	1.7
9	0	0
10	2.3	2.3
11	0.3	0
12	0	4.9
13	2.3	2.3
14	4.6	0.3
15	2.3	2.3
16	0	0
17	0	0
18	0	0
19	1.7	1.7
20	0	0
21	1.7	1.7
22	4.7	4.6
23	1.7	1.7
24	4.7	4.7
IC2002		
1	2.3	2.3
2	2.3	2.3
3	2.3	2.3
4	0	0
5	2.3	2.3
6	2.3	2.3
7	2.3	2.3
8	4.7	4.7
Q2001		
E	4.8	4.9
C	4.7	0.3
B	4.0	4.9
Q2002		
E	5.0	5.0
C	4.8	4.9
B	4.2	5.0
Q2003		
1	-11.8	0
2	-17.4	0.7
3	0	0
4	-11.9	0
5	-17.2	0.7
6	0	0
Q2004		
E	4.7	4.7
C	-17.2	4.7
B	4.7	0
Q2005		
E	0	0
C	4.7	0
B	0	5.0
Q2006		
E	0	0
C	0	0
B	3.6	3.6
Q2007		
E	0	0
C	3.6	3.6
B	0	0
Q2008		
E	0	0
C	4.4	0.3
B	0	0.3

<REGULATOR>

MODE PIN NO.	REC	PLAY
IC6001		
1	4.1	4.2
2	7.0	7.1
3	6.4	6.5
4	0	0
5	1.4	1.4
6	1.2	1.2
7	1.2	1.2
8	4.1	3.2
9	0	0
10	1.9	1.8
11	0.2	0.2
12	0.2	0.3
13	6.7	6.8
14	0	0
15	1.8	1.8
16	1.2	1.2
17	1.6	1.6
18	6.7	6.8
19	2.5	2.5
20	6.7	6.8
21	6.7	6.8
22	6.7	6.8
23	0	0
24	1.3	1.3
25	1.3	1.3
26	1.3	1.3
27	1.6	1.6
28	1.8	1.8
29	2.5	2.5
30	2.5	2.5
31	2.5	2.5
32	0	0
33	2.5	2.5
34	4.9	5.0
35	6.4	6.5
36	6.7	6.8
37	6.3	6.3
38	0	0
39	6.7	6.8
40	6.3	6.4
41	2.3	2.3
42	0	0
43	1.8	1.9
44	6.4	6.5
45	6.7	6.8
46	6.2	6.2
47	2.4	2.4
48	5.9	6.0
IC6002		
1	4.9	1.0
2	6.7	6.8
3	4.7	0
4	0	0
Q6001		
E	6.7	6.8
C	6.7	6.8
B	0	0
Q6003		
E	6.7	6.8
C	5.4	5.4
B	6.1	6.2
Q6004		
E	5.0	5.0
C	4.9	0.5
B	4.3	5.0
Q6006		
1	0	0
2	6.4	6.5
3	6.8	6.8
4	2.9	2.9
Q6007		
E	6.7	6.8
C	2.0	2.0
B	6.3	6.3
Q6009		
E	0	0
C	0	0
B	4.7	5.0
Q6010		
E	4.9	0.5
C	4.1	3.2
B	4.7	0.4
Q6011		
E	15.2	15.3
C	16	16
B	15.9	15.9
Q6012		
E	15.2	15.3
C	15.1	0
B	0	15.2
Q6013		
E	0	0
C	0	0
B	4.3	4.3
Q6014		
E	5.0	5.0
C	4.9	-12.1
B	0.4	4.9
Q6015		
E	-7.8	-12.2
C	-7.7	0
B	4.9	-12.1
Q6016		
E	0	0
C	0	15.2
B	4.7	0
Q6201		
E	6.7	6.8
C	0	0
B	6.7	6.8
Q6202		
E	0	0
C	6.7	6.8
B	0	0
Q6203		
E	6.7	6.8
C	6.7	6.8
B	6.0	6.1
Q6204		
E	0	0
C	0	0
B	0.7	0.7
Q6205		
E	6.7	0
C	6.4	0
B	6.4	0

<JACK>

MODE PIN NO.	REC	PLAY
IC41		
1	0	0
2	4.8	4.8
3	0	0
4	0	0
5	4.9	4.9
Q42		
E	0	0
C	0.4	0.4
B	0	0

<PROCESS AND Y/C>

MODE PIN NO.	REC	PLAY
IC3001		
1	1.7	0
2	2.4	0.4
3	1.8	3.8
4	3.1	3.6
5	1.9	1.9
6	2.2	3.9
7	0	0
8	1.8	1.9
9	2.7	2.7
10	1.8	1.8
11	1.8	1.8
12	4.8	4.9
13	2.4	2.4
14	2.3	0
15	1.8	1.8
16	2.5	1.6
17	3.1	1.2
18	0.9	0.9
19	1.1	1.9
20	4.7	4.6
21	1.6	1.7
22	4.2	3.2
23	2.2	1.9
24	0	0
25	0.4	0.4
26	2.2	2.2
27	2.0	2.0
28	1.9	2.0
29	1.1	2.0
30	3.7	2.6
31	0.6	2.3
32	0.6	2.3
33	2.7	0.9
34	2.0	2.6
35	2.0	2.6
36	0	1.1
37	2.3	2.8
38	1.8	1.4
39	3.4	4.8
40	4.9	4.8
41	2.6	2.6
42	0.3	2.8
43	0	0
44	2.7	2.4
45	0	0
46	2.1	2.1
47	2.2	2.2
48	2.1	2.1
49	0	0
50	2.0	2.0
51	4.9	5.0
52	0	0
53	0	0
54	1.3	1.3
55	0	0
56	1.55	2.0
57	1.7	1.7
58	4.6	4.6
59	2.2	2.7
60	2.6	2.6
61	0.6	2.1
62	3.0	3.0
63	0.8	0.8
64	2.9	2.6
65	1.7	1.6
66	3.0	2.9
67	0.8	0
68	0	0
69	0.9	0.9
70	2.0	1.9
71	1.9	1.9
72	4.7	4.6
73	1.9	1.9
74	2.6	2.5
75	2.3	1.8
76	0	0
77	2.6	2.6
78	3.3	3.3
79	2.3	2.2
80	2.3	2.2
81	1.8	1.8
82	1.8	1.8
83	0	0
84	0	0
85	0	0
86	3.3	3.3
87	3.1	0.9
88	1.9	0.8
89	1.7	0.8
90	2.0	0.8
91	2.4	1.0
92	0.6	0
93	4.8	4.9
94	2.1	3.4
95	1.8	1.8
96	2.1	3.4
97	3.1	0
98	3.1	0
99	1.8	0
100	1.8	0
101	2.4	1.1
102	2.4	1.1
103	1.8	0.4
104	1.8	0.6
105	2.0	0.4
106	1.9	2.0
107	1.6	1.6
108	2.4	2.4
109	3.1	1.3
110	2.9	4.4
111	2.8	3.9
112	3.1	1.2
113	1.4	0
114	1.4	1.0
115	0	0
116	1.8	1.8
117	1.8	1.8
118	3.5	3.8
119	1.7	2.5
120	1.7	2.5
121	2.2	2.2
122	2.2	2.2
123	1.8	0
124	1.8	0.3
125	3.4	0
126	1.8	1.8
127	3.0	0
128	1.8	1.0
IC3003		
1	2.0	2.0
2	0	0
3	4.8	4.8
4	3.0	3.0
5	0	0
6	2.7	2.7
7	1.9	1.9
8	2.5	2.5
9	4.8	4.8
10	0	0
11	2.4	2.3
12	1.9	1.9
13	2.9	2.9
14	4.9	0
15	0	2.9
16	0	4.8
17	0	0
18	-2.5	-2.5
19	0	2.5
20	1.9	1.9
Q3006		
E	3.2	3.4
C	0	0
B	2.5	2.8
Q3082		
E	1.9	1.78
C	4.8	4.8
B	2.4	2.4
Q3084		
E	3.1	3.0
C	0	0
B	2.5	2.4
Q3231		
E	1.4	1.3
C	4.6	4.5
B	2.0	2.0
Q3232		
E	3.9	3.9
C	4.9	4.9
B	4.6	4.5
Q4010		
E	1.7	0.4
C	0	0
B	1.0	0
Q4011		
E	2.1	0.5
C	0	0
B	1.4	0

<MDA>

MODE PIN NO.	REC	PLAY
C1601		
1	1.5	1.5
2	6.7	6.7
3	0.4	0.4
4	1.5	1.5
5	1.5	1.5
6	1.5	1.5
7	0.7	0.7
8	0	0
9	0.6	0.6
10	0.6	0.6
11	0.6	0.6
12	1.1	1.1
13	0	0
14	4.9	4.9
15	0	0
16	4.9	4.9
17	4.9	4.9
18	0	0.6
19	5.9	5.9
20	2.8	2.8
21	2.8	2.8
22	1.5	1.5
23	2.8	2.8
24	2.5	2.5
25	0.6	0.6
26	6.7	6.7
27	6.7	6.7
28	6.7	6.7
29	1.5	1.5
30	0	0
31	1.5	1.5
32	0	0
IC1602		
1	0	0
2	0	0
3	0	0
4	5.0	5.0
5	2.4	2.4
6	2.4	2.4
7	2.4	2.4
8	2.4	2.4
9	2.4	2.4
10	2.4	2.4
11	0	0
12	2.3	2.3
13	2.4	2.4
14	0.9	0.9
IC1651		
1	0	0
2	2.3	2.3
3	2.1	2.1
4	1.2	1.2
5	0	0
6	1.5	1.5
7	1.1	1.1
8	0.5	0.5
9	3.9	3.9
10	0.6	0.6
11	0	0
12	0	0
13	0	0
14	4.9	4.9
15	2.4	2.5
16	2.5	2.5
17	2.4	2.5
18	4.1	4.2
19	0	0
20	2.5	2.5
21	2.5	2.5
22	2.5	2.5
23	2.5	2.5
24	2.5	2.5
25	2.5	2.5
26	1.6	1.6
27	1.6	1.6
28	1.6	1.6
29	0.7	0.7
30	0.7	0.7
31	0.7	0.7
32	0	0
IC1701		
1	0.3	0.3
2	6.7	6.8
3	4.9	4.9
4	0	0
5	0	0
6	4.0	4.1
7	0.3	0.3
8	0	0
QA1651		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0.8	0.8
9	1.6	1.6
10	0.8	0.7
11	1.6	1.6
12	0.7	0.7
13	1.6	1.6
14	2.1	2.1
Q1		
E	–	–
C	–	–
B	–	–
Q2		
E	–	–
C	–	–
B	–	–
Q3		
E	–	–
C	–	–
B	–	–
Q4		
E	–	–
C	–	–
B	–	–

<PRE/REC>

MODE PIN NO.	REC	PLAY
IC3501		
1	–	–
2	–	–
3	–	–
4	–	–
5	–	–
6	–	–
7	–	–
8	–	–
9	–	–
10	–	–
11	–	–
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	–	–
19	–	–
20	–	–
21	–	–
22	–	–
23	–	–
24	–	–
25	–	–
26	–	–
27	–	–
28	–	–
29	–	–
30	–	–
31	–	–
32	–	–
33	–	–
34	–	–
35	–	–
36	–	–
37	–	–
38	–	–
39	–	–
40	–	–
41	–	–
42	–	–
43	–	–
44	–	–
45	–	–
46	–	–
47	–	–
48	–	–
Q3501		
E	3.9	0
C	0	0
B	–	0.6
Q3502		
E	3.9	0
C	3.9	0
B	–	0.6
Q3503		
E	3.9	0
C	3.9	0
B	–	0.6
Q3504		
E	3.9	0
C	3.9	0
B	–	0.6
Q3506		
E	–	–
C	–	–
B	–	–
Q3507		
E	–	–
C	–	–
B	–	–
Q3901		
E	4.8	4.9
C	1.1	0
B	4.1	4.9

<E-VF for AX220U>

MODE PIN NO.	EE
IC7001	
1	2.1
2	4.7
3	2.0
4	0
5	0
6	0
7	2.0
8	4.5
9	4.2
10	0
11	1.9
12	4.4
13	2.7
14	1.8
15	1.8
16	1.6
Q7001	
1	0.5
2	14.7
3	0
Q7002	
E	2.7
C	-25.2
B	2.2
Q7003	
E	-24.6
C	-34.8
B	-25.2

<E. VF for AX420U/AX720U>

MODE PIN NO.	EE
IC101	
1	0.6
2	0.7
3	0.5
4	0.4
5	0.4
6	0.5
7	0
8	0.3
9	4.9
10	0.4
11	0
12	0.5
13	0.5
14	0
15	0
16	2.5
IC102	
1	11.9
2	4.9
3	4.9
4	0
5	4.9
6	4.9
7	13.5
8	15.2
IC103	
1	0
2	4.9
3	0.5
4	0
5	4.4
6	0
7	4.9
8	4.9
IC104	
1	1.6
2	3.2
3	2.1
4	2.8
5	1.6
6	0

MODE PIN NO.	EE
7	4.9
8	2.5
9	0
10	0
11	0
12	3.0
13	0
14	2.5
15	2.6
16	0
17	0
18	0
19	4.9
20	0
21	0
22	2.5
23	2.5
24	4.9
25	0.3
26	0
27	0
28	2.8
29	2.8
30	0.5
31	0
32	0
33	4.9
34	4.9
35	4.9
36	4.9
37	4.9
38	0
39	6.0
40	6.0
41	6.0
42	6.0
43	6.0
44	6.0
45	11.9
46	3.1
47	4.9
48	4.2
49	2.8
50	2.8
51	2.2
52	3.0
53	3.0
54	4.4
55	2.5
56	2.6
57	2.3
58	2.4
59	3.6
60	1.9
61	2.9
62	0.3
63	2.4
64	2.4
Q101	
E	–
C	–
B	–
Q103	
E	1.6
C	4.9
B	2.3
Q104	
1	5.6
2	6.1
3	0
4	6.1
5	5.6
6	11.9
Q105	
E	–
C	–
B	–

MODE PIN NO.	EE
Q106	
E	–
C	–
B	–

<BL> <52>

MODE PIN NO.	EE
Q301	
D	7.3
G	0.3
S	0

<AF/CPU>

MODE PIN NO.	EE
IC4001	
1	1.8
2	1.8
3	4.8
4	3.2
5	1.6
6	0
7	0
8	0
9	2.4
10	2.4
11	2.4
12	0
13	0
14	0
15	1.8
16	4.9
IC4002	
1	1.8
2	1.8
3	1.8
4	4.9
5	1.8
6	1.8
7	1.5
8	1.8
9	1.8
10	1.8
11	0
12	1.7
13	1.8
14	1.6
IC4003	
1	3.8
2	4.9
3	4.9
4	4.9
5	1.8
6	1.8
7	1.8
8	1.7
9	1.7
10	1.7
11	0
12	2.0
13	2.0
14	1.2
IC4501	
1	1.5
2	1.8
3	3.3
4	0
5	3.1
6	2.8
7	4.9
8	4.8
9	4.8

MODE PIN NO.	EE
10	4.8
11	2.7
12	0.4
13	4.9
14	0
15	2.9
16	0.6
17	0
18	4.7
19	0
20	0
21	0
22	4.7
23	0
24	0
25	2.4
26	0
27	2.4
28	0
29	0
30	0
31	0
32	0
33	0
34	1.8
35	4.8
36	3.7
37	0.7
38	0.7
39	0.7
40	4.8
41	4.8
42	4.8
43	0
44	0
45	2.4
46	4.8
47	0.5
48	0.5
49	4.8
50	4.8
51	0.6
52	2.5
53	0
54	1.2
55	1.2
56	0
57	0
58	2.1
59	0
60	4.8
61	2.3
62	4.8
63	1.8
64	0
65	0.5
66	0
67	0
68	4.8
69	2.9
70	2.4
71	0
72	4.8
73	0
74	4.8
75	4.9
76	1.4
77	4.6
78	0.6
79	3.9
80	0
IC4502	
1	2.7
2	3.4
3	2.5
4	2.4
5	2.1

MODE PIN NO.	EE
6	1.2
7	2.1
8	4.3
9	3.9
10	2.4
11	0
12	2.4
13	0
14	1.2
15	3.7
16	4.7
17	0.2
18	0.6
19	2.8
20	3.0
21	1.2
22	0.2
23	0.2
24	2.8
25	1.4
26	0.8
27	2.6
28	0.7
29	2.3
30	0
31	0
32	2.5
33	2.5
34	4.8
35	3.2
36	2.3
37	3.2
38	3.3
39	2.7
40	3.3
41	2.7
42	3.3
43	2.7
44	3.2
IC4503	
1	4.8
2	0.5
3	4.8
4	0
5	0
6	4.0
7	4.8
8	4.8
IC4504	
1	0
2	6.8
3	4.8
IC4506	
1	4.7
2	4.7
3	0
4	4.8
5	0
6	0
7	0
8	0.7
9	1.2
10	4.6
11	0.2
12	4.6
13	4.6
14	4.8
IC4507	
1	0
2	4.9
3	4.9
4	0
5	4.7
6	0
7	4.9
8	0
9	0.3

MODE PIN NO.	EE
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	6.8
18	0
19	0
20	4.8
21	4.8
22	2.0
23	4.8
24	0
IC4508	
1	0
2	4.9
3	4.9
4	0
5	4.7
6	0
7	4.9
8	6.8
9	0.5
10	0
11	0
12	0.5
13	0
14	0
15	0
16	0
17	6.8
18	0
19	0
20	4.8
21	4.8
22	1.9
23	4.8
24	4.9
IC4509	
1	0
2	0
3	0
4	4.8
5	4.8
IC4510	
1	3.4
2	1.8
3	1.8
4	0
5	1.8
6	1.9
7	1.8
8	4.8
Q4005	
1	0.2
2	1.8
3	0.2
4	1.8
5	1.8
Q4501	
E	0
C	4.6
B	0.2
Q4502	
E	4.8
C	4.5
B	4.6
Q4504	
1	0
2	0
3	0
4	4.2
5	4.2
Q4505	
1	1.8

MODE PIN NO.	EE
2	1.2
3	3.5
4	4.8
5	2.9
6	0
Q4506	
1	2.5
2	1.9
3	2.5
4	4.9
5	1.9
6	0
Q4507	
1	1.6
2	1.0
3	1.6
4	4.9
5	1.0
6	0

<CCD>

MODE PIN NO.	EE
IC5201	
1	-7.1
2	-7.1
3	-0.2
4	0
5	0
6	4.9
7	0
8	4.9
9	0
10	4.9
11	0
12	4.7
13	4.9
14	4.6
15	0
16	15.1
17	-6.7
18	-6.8
19	0
20	15.1
IC5202	
1	4.9
2	0
3	3.2
4	2.7
5	1.9
6	2.0
7	1.2
8	4.9
9	0
10	0
11	0
12	4.6
13	4.7
14	4.9
15	4.9
16	4.9
17	0
18	0
19	1.0
20	0.2
21	0
22	2.4
23	0.2
24	4.9
25	0
26	0.5
27	0
28	3.6
29	-
30	0

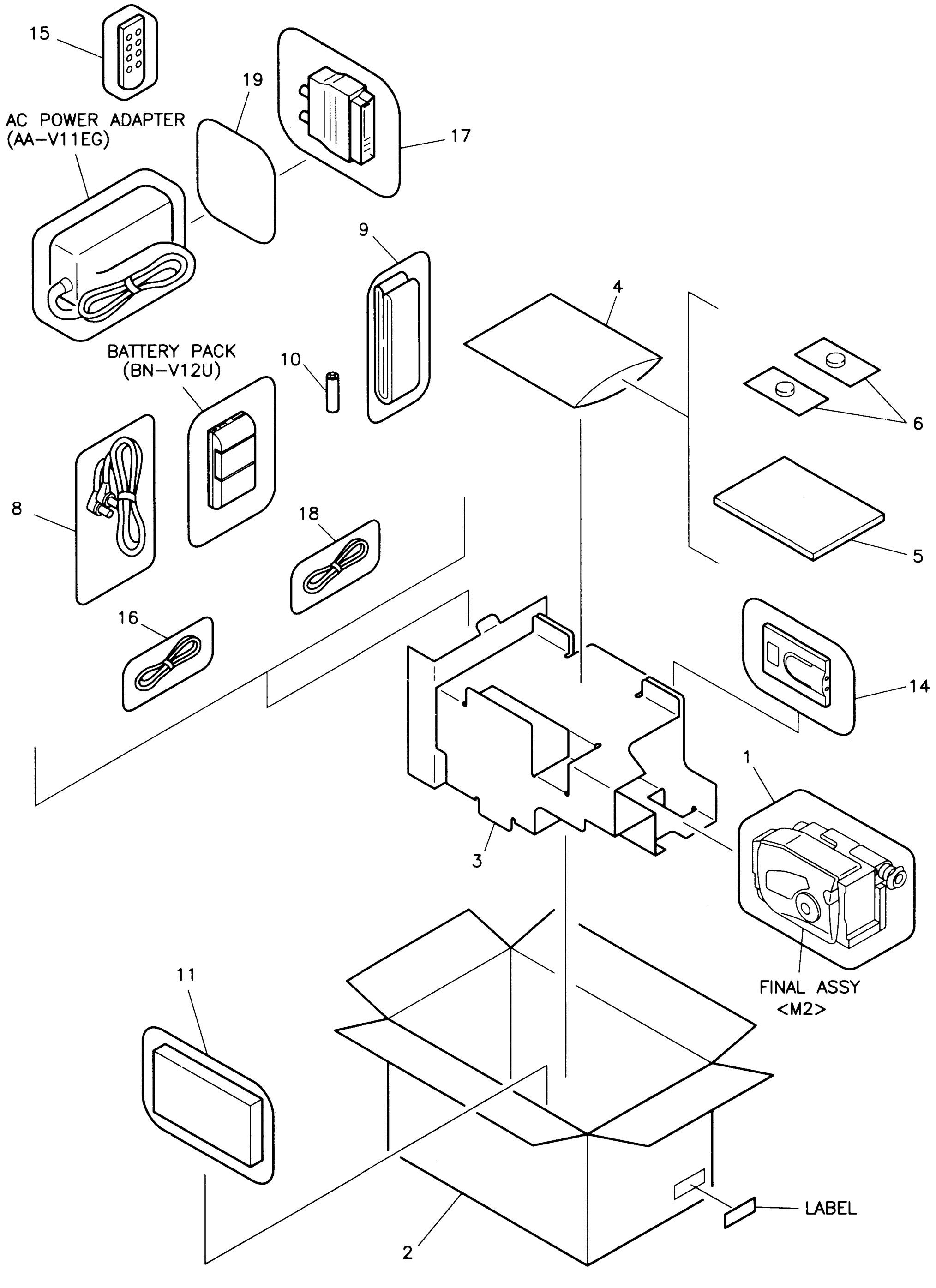
MODE PIN NO.	EE
31	0.7
32	4.9
33	1.8
34	0
35	0.2
36	0
37	1.2
38	4.5
39	0.6
40	0
41	4.9
42	2.8
43	2.8
44	4.9
45	4.9
46	0
47	0
48	2.9
49	2.4
50	0
51	4.8
52	0
53	0
54	2.7
55	2.7
56	0
57	4.9
58	0.4
59	2.4
60	0
61	1.6
62	1.6
63	1.5
64	1.5
IC5203	
1	0
2	0.4
3	2.8
4	4.9
5	0
6	1.4
7	0
8	1.9
Q5203	
E	–
C	–
B	–
Q5204	
E	1.3
C	4.9
B	1.9
Q5205	
E	1.8
C	4.9
B	2.4

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING ASSEMBLY <M1>



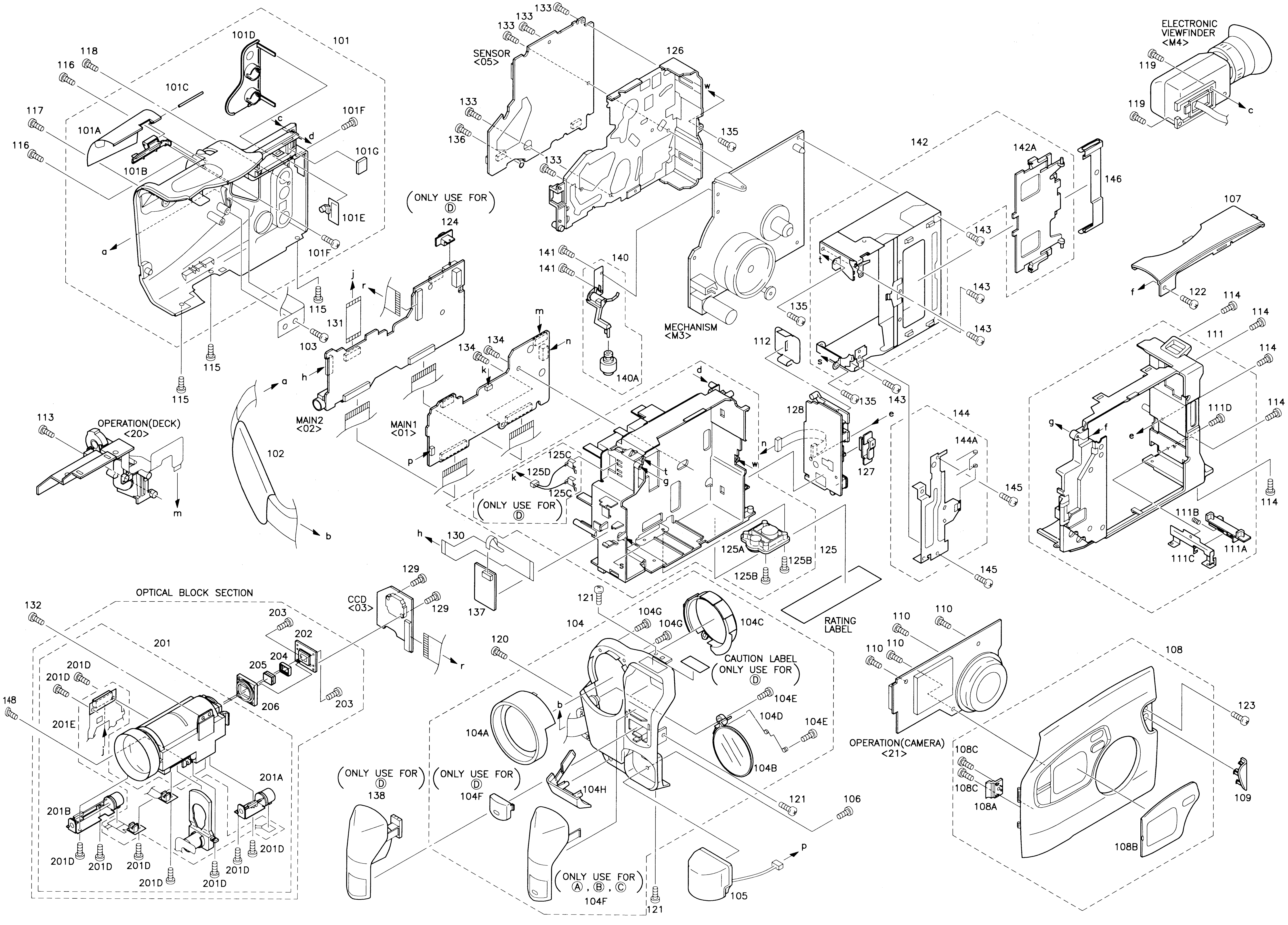
PACKING ASSEMBLY <M1>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	LY30023-002A	POLY BAG
	2	LY30122-011C	PACKING CASE,A
		LY30122-013C	PACKING CASE,C
		LY30122-015D	PACKING CASE,D
		LY30122-016D	PACKING CASE,B
	3	LY30123-001B	CUSHION
	4	QPA02003006	POLY BAG
⚠	5	LYT0002-019A	INSTRUCTIONS(EN,GE),A,C,D
⚠		LYT0002-049A	INSTRUCTIONS(FR,DU),A,C,D
⚠		LYT0002-050A	INSTRUCTIONS(SP,IT),A,C,D
⚠		LYT0002-051A	INSTRUCTIONS(DA,FI),A,C,D
⚠		LYT0002-052A	INSTRUCTIONS(SW,NO),A,C,D
⚠		LYT0002-025A	INSTRUCTIONS(EN,GE),B
⚠		LYT0002-053A	INSTRUCTIONS(FR,DU),B
⚠		LYT0002-054A	INSTRUCTIONS(SP,IT),B
⚠		LYT0002-055A	INSTRUCTIONS(DA,FI),B
⚠		LYT0002-056A	INSTRUCTIONS(SW,NO),B
⚠	6	PECA0903	LI BATTERY,A,C
⚠		PECA0903	LI BATTERY,X2 B,D
	8	PEAC0449	DC PLUG CORD
	9	YQ10188A-1	S STRAP ASSY
	10	R6PRPA-B	BATTERY
	11	YQ31963A-3	CASSETTE ADAPTER ASSY
		or YQ31963B-3	CASSETTE ADAPTER ASSY
	14	YQ20773Q	REMOTE CONTROLLER,D
	15	YQ20932A	REMOTE CONTROLLER,B
	16	PEAC0362-150	CABLE ASSY(AUDIO/VIDEO)
	17	PEMC1174	CONNECTOR,CABLE ADAPTER
	18	PEAC0428-150	CABLE ASSY,EDITING CABLE D
	19	LY40073-001A	SPACER

- INSTRUCTIONS
  EN .... ENGLISH
  FR .... FRENCH
  GE .... GERMAN
  DU .... DUTCH
  SP .... SPANISH
  IT .... ITALIAN
  SW .... SWEDISH
  DA .... DANISH
  FI .... FINNISH
  NO .... NORWEGIAN

MODEL	MARK
GR-AX270EG	A
GR-AX275EG	B
GR-AX370EG	C
GR-AX470EG	D

5.2 FINAL ASSEMBLY <M2>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103
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MAIN2
<02>
MAIN1
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m
n
k
134
134
(ONLY USE FOR Ⓓ)
124
SENSOR
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w
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140A
141
141
MECHANISM
<M3>
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142A
146
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144A
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ELECTRONIC
VIEWFINDER
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OPERATION(DECK)
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w
s
d
(ONLY USE FOR Ⓓ)
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137
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129
CCD
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RATING
LABEL
OPTICAL BLOCK SECTION
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148
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201D
201D
201E
j
202
203
203
204
205
206
121
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121
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104A
104B
104C
104D
104E
104E
104F
104F
104G
104G
104H
b
120
CAUTION LABEL
(ONLY USE FOR Ⓓ)
(ONLY USE FOR Ⓓ)
138
(ONLY USE FOR Ⓓ)
(ONLY USE FOR Ⓐ, Ⓑ, Ⓒ)
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110
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OPERATION(CAMERA)
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108A
108B
108C
108C
109
123

****

FINAL ASSEMBLY <M2>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	101	LY10004-003C	LOWER CASE ASSY,A,B,C
⚠		LY10004-005C	LOWER CASE ASSY,D
	101A	LY30103-002B	COVER/D.OPE
	101B	LY30106-001C	GUIDE
	101C	YQ43795	SHAFT
	101D	LY30125-001A	COVER/JACK
	101E	LY30107-001A	COVER/CONECT
	101F	QYSLSG2040D	SCREW,X2
	101G	LY40040-001A	SPACER
	102	LY20014-001A	GRIP BELT
	103	LY30018-001A	SPECIAL SCREW
	104	LY20017-003C	FRONT COVER ASSY,B
		LY10006-005C	FRONT COVER ASSY,A,C
		LY10006-006C	FRONT COVER ASSY,D
	104A	LY30109-001A	HOOD
	104B	LY30110-001A	SHUTTER
	104C	LY30111-001B	KNOB/SHUTTER
	104D	LY40002-001A	TORSION SPRING
	104E	YQ43762	SPECIAL SCREW,X2
	104F	LY40011-001A	IR WINDOW,D
		LY20005-001B	IR WINDOW,A,C
		LY20018-002B	IR WINDOW,B
	104G	QYSLSF2050Z	SCREW,X2
	104H	LY30112-001C	JACK COVER
	105	LY30145-001B	MICROPHONE,B
		LY30128-001C	MICROPHONE,A,C,D
	106	QYSLSF2055D	SPECIAL SCREW
	107	LY20002-006B	TOP COVER,A
		LY20002-007B	TOP COVER,C
		LY20006-001B	TOP COVER,D
		LY20012-005B	TOP COVER,B
⚠	108	LY20019-003C	CASSETTE COVER ASSY,B
⚠		LY10010-003E	CASSETTE COVER ASSY,A,C
⚠		LY10017-001E	CASSETTE COVER ASSY,D
	108A	LY30115-001B	HINGE
	108B	LY30130-001B	WINDOW/MENU,A,C
		LY30130-002B	WINDOW/MENU,D
		LY30154-001A	WINDOW,B
	108C	QYSLSF2050D	SCREW,X2
	109	LY40022-001B	PUSH BUTTON ASSY,A,C
		LY40023-002B	PUSH BUTTON ASSY,B
		LY40022-008A	PUSH BUTTON ASSY,D
	110	QYSLSF2055D	SPECIAL SCREW,X4
⚠	111	LY10008-002B	UPPER CASE ASSY
	111A	YQ32079	KNOB(B.RELEASE)
	111B	LY30002-001A	COMPRES. SPRING
	111C	LY30120-001A	BRK/B.RELESE
	111D	QYSLSP2040D	SCREW
	112	YQ30931-1-4	BATTERY COVER
	113	QYSLSF2055D	SPECIAL SCREW
	114	QYSLSF2055D	SPECIAL SCREW,X5
	115	QYSLSF2055D	SPECIAL SCREW,X3
	116	QYSLSF2055D	SPECIAL SCREW,X2
	117	QYSLSF1750D	SCREW
	118	QYSLSG2080D	SCREW
	119	QYSLSG2080D	SCREW,X2
	120	QYSLSF2055D	SPECIAL SCREW
	121	QYSLSF2055D	SPECIAL SCREW,X3
	122	QYSLSF2055D	SPECIAL SCREW
	123	QYSLSP2030D	SCREW
	124	LY40010-001A	KNOB/LIGHT,D
⚠	125	LY20003-003B	FRAME ASSY
	125A	YQ31843	BASE
	125B	QYSLSF2060D	SCREW,X2
	125C	YQ43810	CONTACT(LIGHT),X2 D
	125D	ML-Y00783B	LIGHT WIRE,D
	126	LY10003-001B	BKT/B-B
	127	LY30121-001A	KNOB/EJECT
	128	LY30102-001A	BATTERY TERMINAL ASSY
	129	QYTPSP2006Z	SCREW,X2
	130	QAL0005-001	FPC,A,B,C
		QAL0004-001	FPC,D
	131	PEWR0852	FFC
	132	QYSLSF2055D	SPECIAL SCREW
	133	QYSPSPU1740Z	SCREW,X5
	134	QYSLSF1750D	SCREW,X2
	135	QYSLSF1750D	SCREW,X3
	136	QYSPSPU1720M	SCREW
	137	QAL0010-002	IR SENSOR UNIT,A,C
		QAL0010-001	IR SENSOR UNIT,B,D
	138	LY20001-001B	DC LIGHT,D
	140	YQ44027A-7	CLEANER ASSY
	140A	YQ44109A-2	CLEANER ROLLER ASSY
	141	YQ44457-3	SCREW,X2
	142	YQ31752C-15	CASSETTE HOUSING ASSY
	142A	LY20010-001A	C.COVER INSIDE
	143	YQ44457-3	SCREW,X4
	144	YQ32300B	FRONT FRAME ASSY
	144A	YQ44144	TAPE GUIDE
	145	SPSH1725M	SCREW,X2
	146	LY30144-001B	SLIDE PLATE
	148	QYSLSG2080D	SCREW

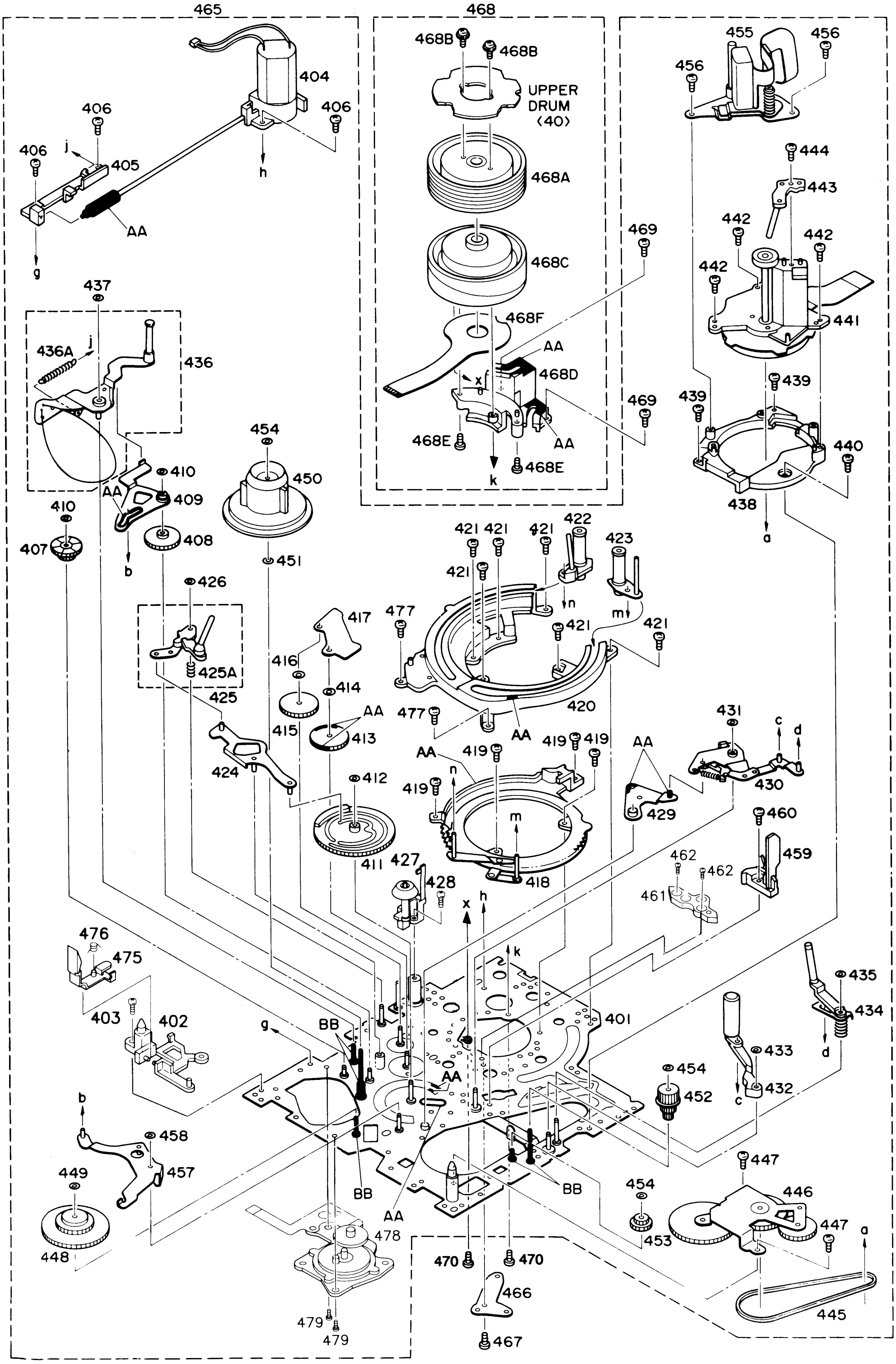
– OPTICAL BLOCK SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	201	LY30151-001A	OP BLOCK ASSY
	201A	PTY30151-002	FOCUS MOTOR UNIT
	201B	PTY30151-001	ZOOM MOTOR UNIT
	201D	PTY30151-016	SCREW,X9 M1.7X3.5
	201E	PTY30151-006	IRIS UNIT
	202	YS40113L	CCD BASE ASSY
	203	SPSN2090Z	SCREW,X2
	204	YQ31844	SPACER RUBBER
	205	LY40024-001A	OP LPF
	206	YQ20823	CCD SPACER

5.3 MECHANISM ASSEMBLY <M3>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.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468
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UPPER DRUM (40)
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468D
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468E
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j
405
h
AA
g
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456
456
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443
442
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441
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436A
j
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AA
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AA
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g
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AA
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434
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c
432
454
452
b
458
457
449
448
BB
AA
478
479
479
470
470
466
467
BB
447
454
453
446
447
a
445

Classifi-cation	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	YTU94027	BB

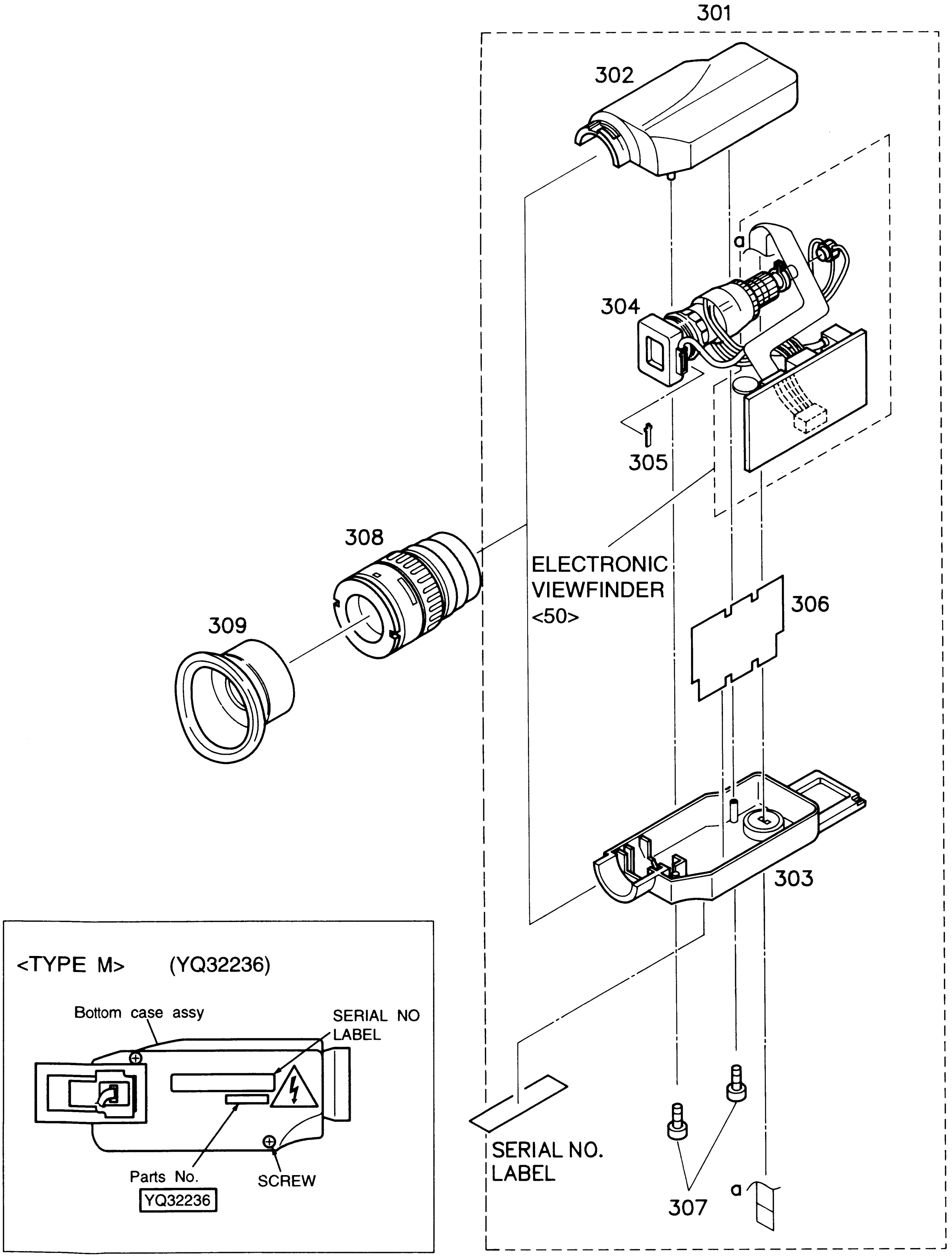
NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

****

MECHANISM ASSEMBLY <M3>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
401	LY20009-001A	MAIN DECK ASSY
402	YQ32218	CASS.GUIDE(L)
403	YQ44457	SCREW
404	YQ31856A-3	MOTOR BRACKET ASSY
405	YQ20793	WORM BRACKET
406	YQ44457	SCREW,X3
407	YQ31783	WHEEL GEAR
408	YQ44328	MIDDLE GEAR
409	YQ43849B	CANCEL LEVER ASSY
410	PQM30017-27	SLIT WASHER,X2
411	YQ20827-2-1	CONTROL CAM
412	PQM30017-25	SLIT WASHER
413	YQ43853A	LOADING GEAR(T)ASSY
414	PQM30017-27	SLIT WASHER
415	YQ43852A	LOADING GEAR(S)ASSY
416	PQM30017-27	SLIT WASHER
417	YQ43634	COVER PLATE
418	YQ43635C-9	LOADING RING ASSY
419	YQ44457	SCREW,X4
420	YQ10516-1-11	GUIDE RAIL
421	YQ44457-5	SCREW,X6
422	YQ43646A-4	SUPPLY POLE BASE ASSY
423	YQ43654A-11	TAKE-UP POLE BASE ASSY
424	YQ44439A-2	DRIVE LEVER ASSY
425	YQ43663C-7	SLANT ARM ASSY
425A	YQ43670	TOR.SPRING(S)
426	PQM30017-27	SLIT WASHER
427	YQ44436A-3	ROLLER BASE ASSY
428	YQ44457	SCREW
429	YQ32230	LINK LEVER
430	YQ43682B	LINK ARM ASSY
431	PQM30017-25	SLIT WASHER
432	LY40018-001A	PINCH ROLLER ARM ASSY
433	PQM30017-25	SLIT WASHER
434	YQ44591A	TAKE-UP GUIDE ARM ASSY
435	PQM30017-27	SLIT WASHER
436	YQ44199C-7	TENSION ARM ASSY
436A	YQ43848-1-2	TENSION SPRING
437	PQM30017-27	SLIT WASHER
438	YQ20797-1-3	MOTOR BASE
439	YQ44457	SCREW,X2
440	YQ44460	SCREW
441	YU42078-2	CAPSTAN MOTOR
442	YQ44304	TAPPING SCREW,X3
443	YQ43708A-2	SLANT POLE BASE ASSY
444	YQ44304	TAPPING SCREW
445	YQ43710	TIMING BELT
446	YQ43711B-7	CENTER PULLEY UNIT
447	YQ44457-2	SCREW,X2
448	YQ43729A-2	SUPPLY CLUCH ASSY
449	PQM30017-27	SLIT WASHER
450	YQ31861-1-7	REEL DISC
451	Q03093-835	WASHER
452	YQ31787	TAKE-UP GEAR
453	YQ43737	BRAKE SUB GEAR
454	PQM30017-27	SLIT WASHER,X3
455	YQ43738B-11	A/C HEAD UNIT
456	SPSN1750Z	SCREW,X2
457	YQ43743B	EJECT LEVER ASSY
458	PQM30017-27	SLIT WASHER
459	YQ31833-1-1	LED GUIDE
460	YQ44457	SCREW
461	YQ43818	DRUM SPACER
462	YQ44457	SCREW,X2
465	YMA0022A	MECHA(A) ASSY
466	YU42051	BRUSH
467	YQ44457-3	SCREW
468	YDV2079A	DRUM ASSY
468A	YDM2095E	UPPER DRUM ASSY
468B	YDM4031	SCREW,X2
468C	YDM2096A-1	LOWER DRUM ASSY
468D	YDM1003-1-5	CATCHER
468E	SPSH1730M	SCREW,X2
468F	QAL0008-001	FPC
469	YQ44457	SCREW,X2
470	SPSH1740Z	SCREW,X2
475	YQ32219	SW.LEVER(L)
476	YQ44422-1-1	TORSION SPRING
477	SPSH1730C	SCREW,X2
478	QSW0455-001	ROTARY ENCODER
479	SPSH1730M	SCREW,X2

5.4 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX270EG/AX275EG/AX470EG]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ELECTRONIC VIEWFINDER <50>
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303
SERIAL NO. LABEL
307
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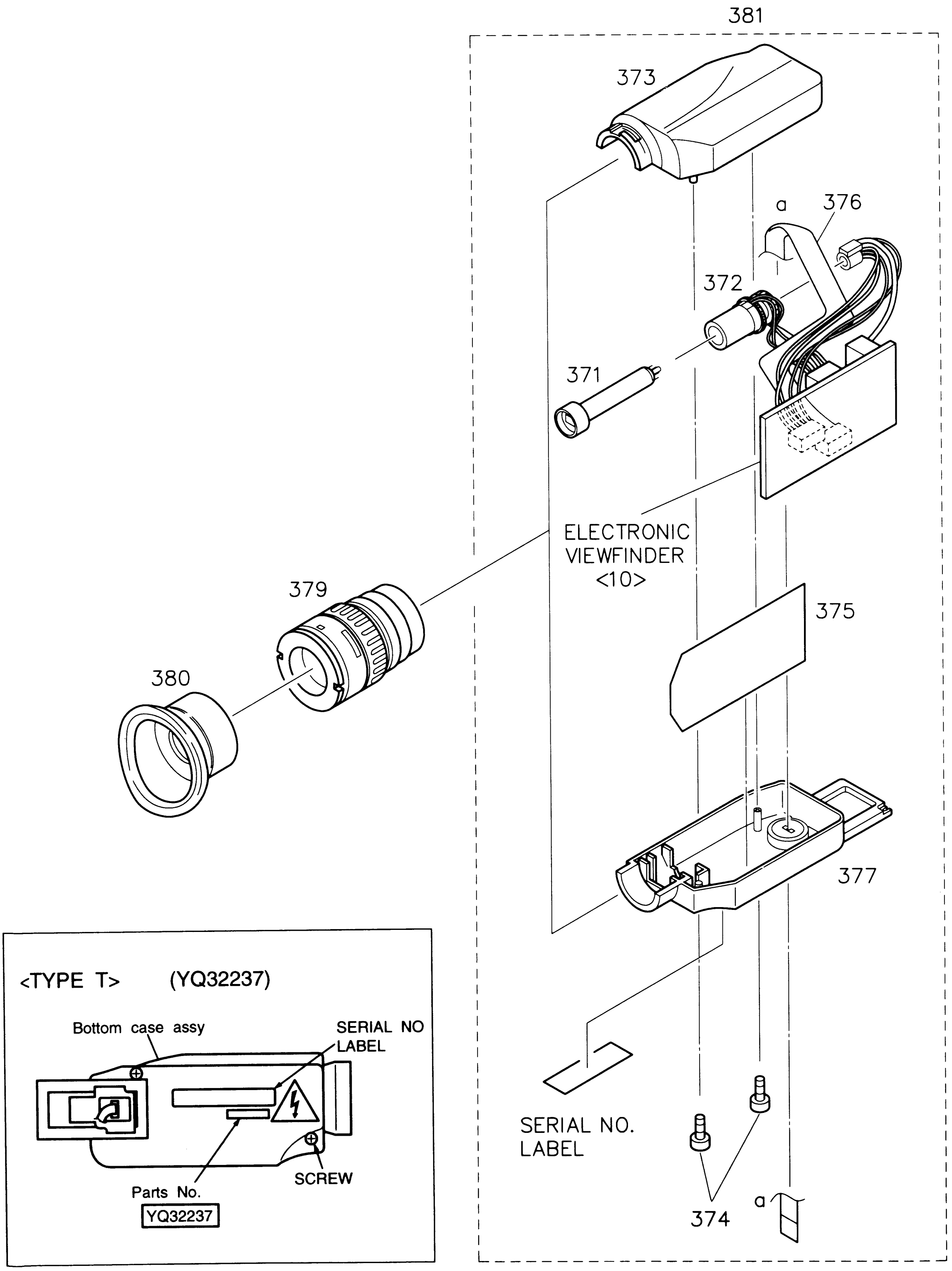
<TYPE M> (YQ32236)
Bottom case assy
SERIAL NO LABEL
Parts No.
YQ32236
SCREW

****

ELECTRONIC VIEWFINDER ASSEMBLY <M4>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	301	YQ32236F	EVF ASSY
⚠	302	YQ32236-001	TOP CASE
⚠	303	YQ32236-102	BOTTOM CASE ASSY
⚠	304	YQ31803-001	CRY/DY ASSY
⚠	305	YU30181-014	HV COVER
⚠	306	YQ31803-100	INSULATOR
	307	YU30045-014	SCREW,X2 M1.7X5
	308	YQ31803-200	LENS ASSY
	309	YQ31803-201	EYE CAP

5.5 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX270EG/AX275EG/AX470EG]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VIEWFINDER
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SERIAL NO.
LABEL
374
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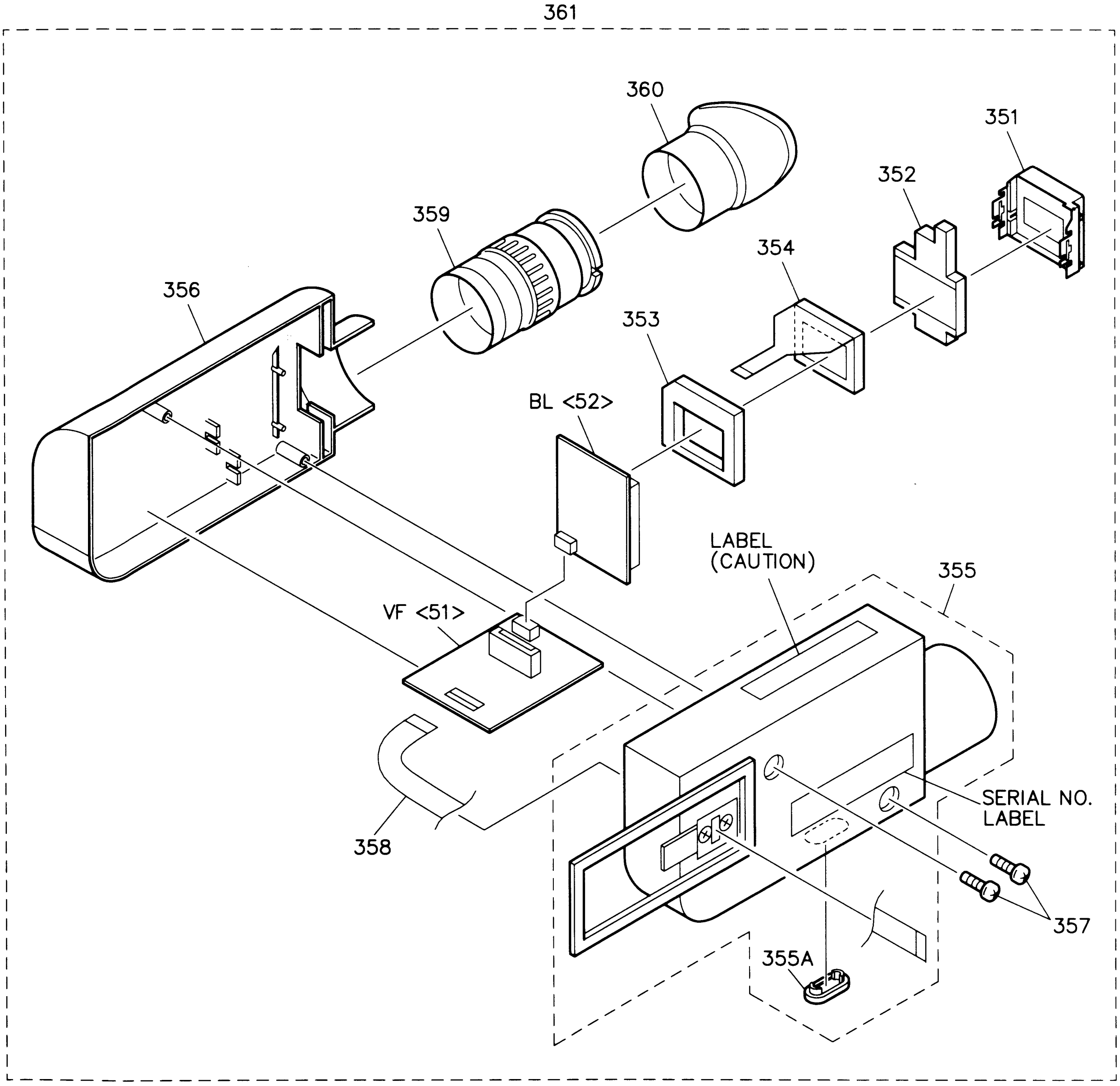
<TYPE T> (YQ32237)
Bottom case assy
SERIAL NO
LABEL
SCREW
Parts No.
YQ32237

ELECTRONIC VIEWFINDER ASSEMBLY <M4>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	371	PEDP0193	CRT
⚠	372	PELN1179	DEFLECTION YOKE
⚠	373	YQ10628-2	TOP CASE
	374	SPSN1750M	SCREW,X2
⚠	375	YQ44473	INSULATOR
	376	QAL0007-001	FPC
	377	YQ32237-102	BOTTOM CASE ASSY
	379	YQ31803-200	LENS ASSY
	380	YQ31803-201	EYE CAP
⚠	381	YQ32237F-1	EVF ASSY

5.6 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX370EG]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LABEL
(CAUTION)
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VF <51>
SERIAL NO.
LABEL
358
357
355A

****

ELECTRONIC VIEWFINDER ASSEMBLY <M4>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	351	YQ31801-1-3	HOLDER(LCD)
	352	YQ43792	WINDOW(LCD)
	353	LY40016-001A	DAMPER/LAMP
	354	PEDP0191	LCD PANEL
⚠	355	YQ31958E-4	BOTTOM CASE ASSY
	355A	YQ44253	CAP
⚠	356	YQ31932B	TOP CASE ASSY
	357	SPSN2080M	SCREW,X2
	358	QAL0021-001	FPC
	359	YQ31803-200	LENS ASSY
	360	YQ31803-201	EYE CAP
⚠	361	YS20899B	EVF ASSY

5.7 ELECTRICAL PARTS LIST

MODEL	MARK
GR-AX270EG	A
GR-AX275EG	B

MODEL	MARK
GR-AX370EG	C
GR-AX470EG	D

****

MAIN1 BOARD ASSEMBLY <01>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PW1	YB10175J1-04	MAIN1 BOARD ASSY,A	
		YB10175L1-04	MAIN1 BOARD ASSY,C	
		YB10175N1-04	MAIN1 BOARD ASSY,D	
		YB10175O1-04	MAIN1 BOARD ASSY,B	
	IC101	M37771M6A103HP	IC	
	IC102	UPD6462GS-902-X	IC	
		or BU6253FV-001-X	IC	
	IC104	MC74HC14ADT	IC(DIGITAL)	
		or TC74VHC14FS	IC	
	IC105	S-8423PFS-X	IC	
	IC2001	BA7751AFS	IC	
	IC2002	XRA15218F	IC	
		or BA15218F-XE	IC	
	IC6001	MB3785APFV	IC	
	IC6002	MM1181GM	IC	
	Q103	DTA114EU	TRANSISTOR	
	Q105	DTA114EU	TRANSISTOR	
	Q106	DTC114EU	TRANSISTOR	
	Q107	2SA1576/QRS/-X	TRANSISTOR	
	Q108	2SA1774/RS/-X	TRANSISTOR	
	Q109	DTC144EE	TRANSISTOR	
		or RN1104	TRANSISTOR	
		or UN9213	TRANSISTOR	
	Q1001	DTC144EE	TRANSISTOR	
		or RN1104	TRANSISTOR	
		or UN9213	TRANSISTOR	
	Q1002	2SC4617/RS/-X	TRANSISTOR	
	Q2001	2SA1774/QR/-X	TRANSISTOR	
	Q2002	2SA1774/QR/-X	TRANSISTOR	
	Q2003	UMX1N	TRANSISTOR	
	Q2004	DTA114EE	TRANSISTOR	
		or RN2102	TRANSISTOR	
		or UN9111	TRANSISTOR	
	Q2005	DTC144EE	TRANSISTOR	
		or RN1104	TRANSISTOR	
		or UN9213	TRANSISTOR	
	Q2008	2SC4097/QR/-X	TRANSISTOR	
	Q6001	DTA144EE	TRANSISTOR	
		or RN2104	TRANSISTOR	
		or UN9113	TRANSISTOR	
	Q6003	2SB1302/ST/-X	TRANSISTOR	
	Q6004	2SB1308/QR/-X	TRANSISTOR	
	Q6006	MPL1	TRANSISTOR	
	Q6007	2SB1121/TU/-X	TRANSISTOR	
	Q6009	DTC114EE	TRANSISTOR	
		or RN1102	TRANSISTOR	
		or UN9211	TRANSISTOR	
	Q6010	DTC114EE	TRANSISTOR	
		or RN1102	TRANSISTOR	
		or UN9211	TRANSISTOR	
	Q6011	2SC4081/S/-X	TRANSISTOR	
	Q6012	DTA114EE	TRANSISTOR	
		or RN2102	TRANSISTOR	
		or UN9111	TRANSISTOR	
	Q6013	DTC114EE	TRANSISTOR	
		or RN1102	TRANSISTOR	
		or UN9211	TRANSISTOR	
	Q6014	DTA144EE	TRANSISTOR	
		or RN2104	TRANSISTOR	
		or UN9113	TRANSISTOR	
	Q6015	DTC144EE	TRANSISTOR	
		or RN1104	TRANSISTOR	
		or UN9213	TRANSISTOR	
	Q6016	DTC114EE	TRANSISTOR	
		or RN1102	TRANSISTOR	
		or UN9211	TRANSISTOR	
	Q6201	2SB1308/QR/-X	TRANSISTOR,D	
	Q6202	2SC4617/QRS/-X	TRANSISTOR,D	
		or 2SC4738/YG/-X	TRANSISTOR,D	
	Q6203	2SB1302/ST/-X	TRANSISTOR	
	Q6204	2SC4617/QR/-X	TRANSISTOR	
		or 2SC4738/YG/-X	TRANSISTOR	
	Q6205	2SB1308/QR/-X	TRANSISTOR,D	
⚠	D101	MA704	SB DIODE	
	D103	1SS355	DIODE	
	D104	MA8075/M/-X	ZENER DIODE	
	D106	MA8075/M/-X	ZENER DIODE	
	D6001	MA736	SB DIODE	
	D6002	DWA010	SB DIODE	
	D6005	1SS355	DIODE	
	D6007	1SS355	DIODE	
	D6008	DAN222	DIODE	
	DA101	DAP202U	DIODE	
	DA103	DAP202U	DIODE	
	R102	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
	R103	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R104	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
	R106	NRSA63J-221X	MG RESISTOR	220Ω,1/16W
	R107	NRSA63J-124X	MG RESISTOR	120kΩ,1/16W
	R108	NRVA63D-103X	CMF RESISTOR	10kΩ,1/16W
	R109	NRVA63D-473X	CMF RESISTOR	47kΩ,1/16W
	R110	NRVA63D-823X	CMF RESISTOR	82kΩ,1/16W
	R114	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R123	NRSA63J-685X	MG RESISTOR	6.8MΩ,1/16W
	R125	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R126	NRSA63J-221X	MG RESISTOR	220Ω,1/16W
	R127	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
	R128	NRSA63J-751X	MG RESISTOR	750Ω,1/16W
	R129	NRSA63J-751X	MG RESISTOR	750Ω,1/16W
	R130	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
	R131	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
	R132	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
	R140	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R141	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R143	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R153	NRSA63J-751X	MG RESISTOR	750Ω,1/16W
	R169	NRSA63J-103X	MG RESISTOR,A,C	10kΩ,1/16W
	R170	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R171	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R172	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R175	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
	R176	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R177	NRSA63J-104X	MG RESISTOR,D	100kΩ,1/16W
	R178	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R179	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
⚠	R180	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R181	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R182	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R1002	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R1004	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R1005	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R1006	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1007	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R1008	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R1009	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R1010	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1011	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R1012	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R1013	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2001	NRVA63D-432X	CMF RESISTOR	4.3kΩ,1/16W
R2002	NRSA63J-3R3X	MG RESISTOR	3.3Ω,1/16W
R2003	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R2004	NRSA63J-820X	MG RESISTOR	82Ω,1/16W
R2005	NRSA63J-820X	MG RESISTOR	82Ω,1/16W
R2006	NRSA63J-820X	MG RESISTOR	82Ω,1/16W
R2008	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R2009	NRVA63D-103X	CMF RESISTOR	10kΩ,1/16W
R2010	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R2011	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R2012	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R2013	NRSA63J-132X	MG RESISTOR	1.3kΩ,1/16W
R2015	NRSA63J-822X	MG RESISTOR	8.2kΩ,1/16W
R2016	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R2018	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R2019	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R2021	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2022	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R2023	NRSA63J-470X	MG RESISTOR	47Ω,1/16W
R2024	NRSA63J-155X	MG RESISTOR	1.5MΩ,1/16W
R2025	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2026	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R2027	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2028	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R2029	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2030	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R2031	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R2032	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R2033	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R2034	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2035	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2036	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2037	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R2038	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2039	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R2040	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2042	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2049	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R2050	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2061	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6001	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6002	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6003	NRVA63D-103X	CMF RESISTOR	10kΩ,1/16W
R6004	NRVA63D-103X	CMF RESISTOR	10kΩ,1/16W
R6005	NRVA63D-823X	CMF RESISTOR	82kΩ,1/16W
R6006	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R6007	NRVA63D-682X	CMF RESISTOR	6.8kΩ,1/16W
R6008	NRVA63D-512X	CMF RESISTOR	5.1kΩ,1/16W
R6009	NRVA63D-113X	CMF RESISTOR	11kΩ,1/16W
R6010	NRVA63D-103X	CMF RESISTOR	10kΩ,1/16W
R6011	NRSA63J-274X	MG RESISTOR	270kΩ,1/16W
R6012	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R6013	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6018	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R6019	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R6020	NRSA63J-391X	MG RESISTOR	390Ω,1/16W
R6021	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6022	NRVA63D-303X	CMF RESISTOR	30kΩ,1/16W
R6023	NRVA63D-103X	CMF RESISTOR	10kΩ,1/16W
R6024	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R6025	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R6026	NRVA63D-243X	CMF RESISTOR	24kΩ,1/16W
R6027	NRVA63D-332X	CMF RESISTOR	3.3kΩ,1/16W
R6028	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R6029	NRVA63D-273X	CMF RESISTOR	27kΩ,1/16W
R6030	NRVA63D-242X	CMF RESISTOR	2.4kΩ,1/16W
R6034	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6035	NRSA63J-470X	MG RESISTOR	47Ω,1/16W
R6037	NRSA63J-822X	MG RESISTOR	8.2kΩ,1/16W
R6038	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R6039	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R6040	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6050	NRSA63J-153X	MG RESISTOR,A,B,D	15kΩ,1/16W
R6051	NRSA63J-103X	MG RESISTOR,A,B,D	10kΩ,1/16W
	NRSA63J-152X	MG RESISTOR,C	1.5kΩ,1/16W
R6056	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R6058	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R6059	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6201	NRSA63J-103X	MG RESISTOR,D	10kΩ,1/16W
R6202	NRSA63J-102X	MG RESISTOR,D	1kΩ,1/16W
R6203	NRSA63J-103X	MG RESISTOR,D	10kΩ,1/16W
R6204	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R6205	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
R6207	NRSA63J-103X	MG RESISTOR,D	10kΩ,1/16W
R6208	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R6209	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
RA102	NRZ0014-105X	NETWORK RESISTOR	1MΩ
RA103	NRZ0014-105X	NETWORK RESISTOR	1MΩ
RA104	NRZ0011-472X	NETWORK RESISTOR	4.7kΩ
RA106	NRZ0014-222X	NETWORK RESISTOR	2.2kΩ
RA107	NRZ0014-222X	NETWORK RESISTOR	2.2kΩ
RA108	NRZ0015-104X	NETWORK RESISTOR	100kΩ
RA109	NRZ0015-104X	NETWORK RESISTOR	100kΩ
RA110	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA111	NRZ0012-222X	NETWORK RESISTOR	2.2kΩ
RA112	NRZ0014-103X	NETWORK RESISTOR	10kΩ
RA113	NRZ0014-222X	NETWORK RESISTOR	2.2kΩ
RA116	NRZ0011-103X	NETWORK RESISTOR	10kΩ
C101	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C102	NEA71CM-106X	E CAPACITOR	10μF,16V
C103	NEA70JM-226X	E CAPACITOR	22μF,6.3V
C104	NCB31EK-103X	CAPACITOR	0.01μF,25V
C105	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C106	NEA50JM-227X	E CAPACITOR	220μF,6.3V
C109	NDC31HJ-101X	CAPACITOR	100pF,50V
C110	NDC31HJ-270X	CAPACITOR	27pF,50V
C111	NDC31HJ-101X	CAPACITOR	100pF,50V
C112	NCB31EK-103X	CAPACITOR	0.01μF,25V
C115	NCB31EK-103X	CAPACITOR	0.01μF,25V
C118	NDC31HJ-180X	CAPACITOR	18pF,50V
C119	NDC31HJ-220X	CAPACITOR	22pF,50V
C121	NDC31HJ-100X	CAPACITOR	10pF,50V
C122	NDC31HJ-120X	CAPACITOR	12pF,50V

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	C125	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C126	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C127	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C130	NCB31HK-102X	CAPACITOR	0.001μF,50V
	C133	NEA71CM-106X	E CAPACITOR	10μF,16V
	C1002	NCF21CZ-474X	CAPACITOR	0.47μF,16V
	C1004	NCB31CK-333X	CAPACITOR	0.033μF,16V
	C1005	NCB31HK-332X	CAPACITOR	0.0033μF,50V
	C1006	NCB31CK-104X	CAPACITOR	0.1μF,16V
	C1007	NEA70JM-226X	E CAPACITOR	22μF,6.3V
	C1008	NEA70JM-226X	E CAPACITOR	22μF,6.3V
	C1009	NEA71HM-105X	E CAPACITOR	1μF,50V
	C1010	NEA71HM-105X	E CAPACITOR	1μF,50V
	C1012	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C1013	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C1014	NEA71HM-335X	E CAPACITOR	3.3μF,50V
	C1015	NDC31HJ-101X	CAPACITOR	100pF,50V
	C1016	NCB31HK-222X	CAPACITOR	0.0022μF,50V
	C1017	NCB31CK-473X	CAPACITOR	0.047μF,16V
	C2001	NDC31HJ-331X	CAPACITOR	330pF,50V
	C2002	NEZ0012-476X	E CAPACITOR	47μF
	C2003	NCF21CZ-105X	CAPACITOR	1μF,16V
	C2004	NCB31HK-152X	CAPACITOR	0.0015μF,50V
	C2006	NCB31HK-152X	CAPACITOR	0.0015μF,50V
	C2007	NCB31HK-681X	CAPACITOR	680pF,50V
	C2008	NBE21CM-105X	T CAPACITOR	1μF,16V
	C2009	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C2010	NEZ0012-476X	E CAPACITOR	47μF,5.5V
	C2012	NBE21CM-105X	T CAPACITOR	1μF,16V
	C2013	NCB21EK-683X	CAPACITOR	0.068μF,25V
	C2015	NCB31HK-682X	CAPACITOR	0.0068μF,50V
	C2016	NEA70GM-476X	E CAPACITOR	47μF,4.0V
	C2017	NEA70GM-476X	E CAPACITOR	47μF,4.0V
	C2018	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
	C2019	NEA70GM-476X	E CAPACITOR	47μF,4.0V
	C2020	NCB11CK-105X	CAPACITOR	1μF,16V
	C2021	NCB31EK-223X	CAPACITOR	0.022μF,25V
	C2022	NBE21DM-474X	T CAPACITOR	0.47μF,20V
	C2024	NDC31HJ-471X	CAPACITOR	470pF,50V
	C2025	NCB31CK-104X	CAPACITOR	0.1μF,16V
	C2026	NFV41HJ-273X	MPPS CAPACITOR	0.027μF,50V
	C2027	NDC31HJ-471X	CAPACITOR	470pF,50V
	C2028	NCB31HK-682X	CAPACITOR	0.0068μF,50V
	C2029	NBE41AM-226X	T CAPACITOR	22μF,10V
	C2030	NEZ0012-476X	E CAPACITOR	47μF,5.5V
	C2032	NCB31EK-123X	CAPACITOR	0.012μF,25V
	C2039	NDC31HJ-331X	CAPACITOR	330pF,50V
	C6001	NCB11CK-105X	CAPACITOR	1μF,16V
	C6002	NCB11CK-105X	CAPACITOR	1μF,16V
	C6003	NCB11CK-105X	CAPACITOR	1μF,16V
	C6005	NCB11CK-105X	CAPACITOR	1μF,16V
	C6007	NCB11CK-105X	CAPACITOR	1μF,16V
	C6009	NCS31HJ-561X	CAPACITOR	560pF,50V
	C6010	NCB31HK-102X	CAPACITOR	0.001μF,50V
	C6011	NCB31HK-472X	CAPACITOR	0.0047μF,50V
	C6012	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C6013	NCB21CK-224X	CAPACITOR	0.22μF,16V
	C6014	NDC31HJ-431X	CAPACITOR	430pF,50V
	C6015	NCB31CK-104X	CAPACITOR	0.1μF,16V
	C6017	NCB31CK-104X	CAPACITOR	0.1μF,16V
	C6018	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C6020	NCS31HJ-561X	CAPACITOR	560pF,50V
	C6023	NCB31EK-472X	CAPACITOR	0.0047μF,25V
	C6024	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C6025	NCB31EK-223X	CAPACITOR	0.022μF,25V
	C6026	NCB11CK-105X	CAPACITOR	1μF,16V
	C6027	NCB11CK-105X	CAPACITOR	1μF,16V
	C6028	NDC31HJ-330X	CAPACITOR	33pF,50V
	C6029	NCB11CK-105X	CAPACITOR	1μF,16V
	C6030	NBE71CM-226X	T CAPACITOR	22μF,16V
	C6032	NCB11CK-105X	CAPACITOR	1μF,16V
	C6033	NCB11CK-105X	CAPACITOR	1μF,16V
	C6034	NCB31HK-152X	CAPACITOR	0.0015μF,50V
	C6035	NCB11CK-105X	CAPACITOR	1μF,16V
	C6036	NCB11CK-105X	CAPACITOR	1μF,16V
	C6037	NCB11CK-105X	CAPACITOR	1μF,16V
	C6045	NCB11CK-105X	CAPACITOR	1μF,16V
	C6046	NEA71CM-226X	E CAPACITOR	22μF,16V
	C6047	NCB11CK-105X	CAPACITOR	1μF,16V
	C6062	NCB11CK-105X	CAPACITOR	1μF,16V
	C6063	NCB11CK-105X	CAPACITOR	1μF,16V
	C6065	NCB31CK-104X	CAPACITOR	0.1μF,16V
	C6066	NCB31CK-104X	CAPACITOR	0.1μF,16V
	C6201	NEA71CM-106X	E CAPACITOR,D	10μF,16V
	L101	NQL184J-100X	COIL	10μH
	L102	NQL164K-100X	COIL	10μH
	L103	NQL164K-100X	COIL	10μH
	L2001	NQR0002-001X	BIAS COIL	
	L2002	NQL144K-101X	COIL	100μH
	L6001	NQL17CM-100X	COIL	10μH
	L6002	NQL17CM-100X	COIL	10μH
	L6003	NQL17CM-390X	COIL	39μH
	L6004	NQL17CM-100X	COIL	10μH
	L6005	NQL17CM-470X	COIL	47μH
	L6006	NQL03BK-150X	COIL	15μH
	L6007	NQL144K-470X	COIL	47μH
	L6008	NQL144K-470X	COIL	47μH
	X101	QAX0009-001	CRYSTAL RESONATOR	
	X102	QAX0011-001	CRYSTAL RESONATOR	
	T6001	NQS0002-001X	SW TRANSF	
	CN101	PEMC1201-050-R	CONNECTOR	
	CN102	PEWR0836	LEAD BUS CONN	
	CN103	PEWR0836	LEAD BUS CONN	
	CN105	QGF0502F1-13X	FPC CONNE	
	CN106	PEMC1215-006-P	CONNECTOR	
	CN107	QGF0502F1-11X	FPC CONNE	
	CN108	YU41356-4-R	CONNECTOR	
	CN110	YU41356-2-P	CONNECTOR,D	
△	CP6001	ICP-S0.5-X	CIRCUIT PROTECTOR,C	
△	CP6002	ICP-S1.8-X	CIRCUIT PROTECTOR	
△	CP6003	ICP-S1.8-X	CIRCUIT PROTECTOR	
	SD1	LY40049-001A	SHIELD SHEET	

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MAIN2 BOARD ASSEMBLY <02>

PW2	YB10175J2-04	MAIN2 BOARD ASSY,A
	YB10175L2-04	MAIN2 BOARD ASSY,C
	YB10175N2-04	MAIN2 BOARD ASSY,D
	YB10175O2-04	MAIN2 BOARD ASSY,B

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC41	TC7S04F	IC(DIGITAL)	
IC3001	JCY0060	IC	
IC3003	MN3875S	IC	
IC4001	XRU4053BCF	IC	
	or BU4053BCF	IC	
IC4002	XRA10324AFV-XE	IC	
	or BA10324AFV-XE	IC	
IC4003	XRA10324AFV-XE	IC	
	or BA10324AFV-XE	IC	
IC4501	UPD78055GC-058	QFP IC (MCU)	
IC4502	JCY0007-1-XE	IC	
IC4503	X25C02S-XE	IC	
IC4504	S-81250HG-RD-X	IC	
	or RH5RL50AA	IC	
IC4506	MC14011BDT	IC	
	or TC4011BFS	IC	
IC4507	TB6504F	IC	
IC4508	TB6504F	IC	
IC4509	PST9140N	IC	
IC4510	UPC358GR	IC	
Q42	2SC4617/RS/-X	TRANSISTOR	
Q3006	2SA1774/QRS/-X	TRANSISTOR	
	or 2SA1832/YG/-X	TRANSISTOR	
Q3082	2SC4617/QRS/-X	TRANSISTOR	
	or 2SC4738/YG/-X	TRANSISTOR	
Q3084	2SA1774/QRS/-X	TRANSISTOR	
	or 2SA1832/YG/-X	TRANSISTOR	
Q3231	2SC4617/QRS/-X	TRANSISTOR	
	or 2SC4738/YG/-X	TRANSISTOR	
Q3232	2SC4617/QRS/-X	TRANSISTOR	
	or 2SC4738/YG/-X	TRANSISTOR	
Q4005	XP1216	TRANSISTOR	
Q4010	2SA1832/Y/-X	TRANSISTOR	
Q4011	2SA1832/Y/-X	TRANSISTOR	
Q4501	DTC144WU	TRANSISTOR	
Q4502	DTA114EU	TRANSISTOR	
Q4504	XP1216	TRANSISTOR	
Q4505	XP5601	TRANSISTOR	
Q4506	XP5601	TRANSISTOR	
Q4507	XP5601	TRANSISTOR	
D43	MA8068	ZENER DIODE	
D46	MA8068	ZENER DIODE	
D3002	DAN222	DIODE	
D3003	DAN222	DIODE	
D3004	MA781WK	SB DIODE,C	
D3005	DAN222	DIODE	
D4501	1SS355	DIODE	
D4502	1SS355	DIODE	
D4503	1SS355	DIODE	
D4504	MA30/A/-X	VARISTOR	
D4505	RD2.7S/B2/-X	ZENER DIODE	
D4506	1SS355	DIODE	
R44	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R45	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R47	NRVA02D-750X	CMF RESISTOR	75Ω,1/10W
R48	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R49	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R50	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R53	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R55	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R56	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3003	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R3004	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
R3005	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3006	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R3007	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R3009	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3010	NRSA63J-391X	MG RESISTOR	390Ω,1/16W
R3011	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
R3013	NRSA63J-392X	MG RESISTOR	3.9kΩ,1/16W
R3015	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R3016	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3018	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R3019	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3020	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R3022	NRVA63D-221X	CMF RESISTOR	220Ω,1/16W
R3025	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3026	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R3027	NRSA63J-911X	MG RESISTOR	910Ω,1/16W
R3028	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3029	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R3030	NRSA63J-911X	MG RESISTOR	910Ω,1/16W
R3031	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3033	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R3034	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R3035	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3036	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3037	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R3038	NRSA63J-822X	MG RESISTOR	8.2kΩ,1/16W
R3041	NRSA63J-103X	MG RESISTOR,C	10kΩ,1/16W
R3043	NRVA63D-221X	CMF RESISTOR	220Ω,1/16W
R3044	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R3045	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R3046	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3061	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R3073	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R3081	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3082	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3087	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R3091	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R3095	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3096	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3097	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3220	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R3221	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3222	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R3223	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R3224	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3225	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3226	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R3228	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3229	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R3230	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3231	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3232	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3233	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3234	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3235	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3236	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4007	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4008	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R4009	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R4010	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4011	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R4012	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R4013	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R4014	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R4015	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R4016	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4017	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R4018	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R4019	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R4020	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4021	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R4022	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R4053	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R4054	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R4055	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4061	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4062	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4063	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4064	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4065	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R4066	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4067	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4068	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4069	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R4070	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4071	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4077	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R4078	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R4079	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4080	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4081	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R4082	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4083	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4085	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4087	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R4088	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R4091	NRSA63J-243X	MG RESISTOR	24kΩ,1/16W
R4092	NRSA63J-912X	MG RESISTOR	9.1kΩ,1/16W
R4093	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4094	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4095	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4096	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4097	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4098	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R4099	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4501	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4502	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4503	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4504	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4505	NRSA63J-241X	MG RESISTOR	240Ω,1/16W
R4506	NRSA63J-751X	MG RESISTOR	750Ω,1/16W
R4507	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4508	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R4509	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R4510	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
R4512	NRSA63J-684X	MG RESISTOR	680kΩ,1/16W
R4513	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R4514	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R4515	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R4516	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R4517	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
R4518	NRSA63J-512X	MG RESISTOR	5.1kΩ,1/16W
R4519	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R4520	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R4521	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4522	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R4523	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R4524	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R4525	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4526	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R4527	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R4528	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R4530	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R4531	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R4532	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4535	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4536	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R4537	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R4538	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
R4542	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R4545	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R4546	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R4547	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4548	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R4549	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R4550	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R4551	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4552	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R4554	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R4556	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R4557	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4558	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R4559	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4560	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R4561	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R4563	NRSA63J-391X	MG RESISTOR	390Ω,1/16W
R4565	NRSA63J-4R3X	MG RESISTOR	4.3Ω,1/16W
R4566	NRSA63J-4R3X	MG RESISTOR	4.3Ω,1/16W
R4570	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R4571	NRSA63J-4R3X	MG RESISTOR	4.3Ω,1/16W
R4572	NRSA63J-4R3X	MG RESISTOR	4.3Ω,1/16W
R4573	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R4574	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R4575	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R4576	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R4577	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R4578	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R4579	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4580	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4581	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R4582	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4584	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R4585	NRSA63J-912X	MG RESISTOR	9.1kΩ,1/16W
R4586	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
RA3001	NRZ0012-222X	NETWORK RESISTOR	2.2kΩ
RA3002	NRZ0012-222X	NETWORK RESISTOR	2.2kΩ
RA4001	NRZ0011-332X	NETWORK RESISTOR	3.3kΩ
RA4002	NRZ0011-472X	NETWORK RESISTOR	4.7kΩ
RA4502	NRZ0014-102X	NETWORK RESISTOR	1kΩ
RA4503	NRZ0012-471X	NETWORK RESISTOR	470Ω
RA4505	NRZ0011-331X	NETWORK RESISTOR	330Ω
RA4509	NRZ0011-103X	NETWORK RESISTOR	10kΩ
RA4510	NRZ0014-472X	NETWORK RESISTOR	4.7kΩ
C41	NEA50GM-337X	E CAPACITOR	330μF,4.0V
C43	NCB31HK-332X	CAPACITOR	0.0033μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C45	NCB31EK-103X	CAPACITOR	0.01μF,25V
C46	NCB11HK-103X	CAPACITOR	0.01μF,50V
C3001	NEA70JM-226X	E CAPACITOR	22μF,6.3V
C3002	NDC31HJ-270X	CAPACITOR	27pF,50V
C3003	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3004	NEA71HM-225X	E CAPACITOR	2.2μF,50V
C3005	NEA70GM-476X	E CAPACITOR	47μF,4.0V
C3006	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3007	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3008	NCB11CK-105X	CAPACITOR	1μF,16V
C3009	NCB11CK-105X	CAPACITOR	1μF,16V
C3011	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3012	NDC31HJ-330X	CAPACITOR	33pF,50V
C3013	NDC21HJ-561X	CAPACITOR	560pF,50V
C3014	NCS31HJ-561X	CAPACITOR	560pF,50V
C3015	NDC31HJ-101X	CAPACITOR	100pF,50V
C3016	NDC31HJ-470X	CAPACITOR	47pF,50V
C3018	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3019	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3020	NEA70JM-226X	E CAPACITOR	22μF,6.3V
C3021	NCF21CZ-105X	CAPACITOR	1μF,16V
C3023	NCB31EK-153X	CAPACITOR	0.015μF,25V
C3024	NDC31HJ-221X	CAPACITOR	220pF,50V
C3025	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3026	NDC31HJ-150X	CAPACITOR	15pF,50V
C3027	NDC31HJ-8R0X	CAPACITOR	8pF,50V
C3028	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3029	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3030	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3031	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3032	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3033	NBE20JM-225X	T CAPACITOR	2.2μF,6.3V
C3034	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
C3035	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3036	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3037	NCB11CK-105X	CAPACITOR	1μF,16V
C3038	NCB31HK-122X	CAPACITOR	0.0012μF,50V
C3039	NEA70JM-226X	E CAPACITOR	22μF,6.3V
C3040	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3041	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3042	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3043	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3045	NEA70JM-476X	E CAPACITOR	47μF,6.3V
C3046	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3047	NDC31HJ-150X	CAPACITOR	15pF,50V
C3048	NDC31HJ-8R0X	CAPACITOR	8pF,50V
C3049	NDC31HG-221X	CAPACITOR	220pF,50V
C3052	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
C3061	NCB31HK-102X	CAPACITOR	0.001μF,50V
C3062	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
C3063	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3064	NCB21EK-104X	CAPACITOR	0.1μF,25V
C3065	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3066	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3067	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3068	NCF21CZ-105X	CAPACITOR	1μF,16V
C3069	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3070	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3071	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3072	NCB31HK-102X	CAPACITOR	0.001μF,50V
C3073	NCB31HK-102X	CAPACITOR	0.001μF,50V
C3078	NCB31CK-104X	CAPACITOR	0.1μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C3079	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3080	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3094	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
C3221	NDC31HJ-820X	CAPACITOR	82pF,50V
C3222	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3231	NDC31HJ-560X	CAPACITOR	56pF,50V
C3232	NDC31HJ-101X	CAPACITOR	100pF,50V
C3233	NDC31HJ-680X	CAPACITOR	68pF,50V
C3234	NDC31HJ-101X	CAPACITOR	100pF,50V
C3235	NDC31HJ-150X	CAPACITOR	15pF,50V
C3236	NDC31HJ-331X	CAPACITOR	330pF,50V
C3237	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4001	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4002	NEA71EM-475X	E CAPACITOR	4.7μF,25V
C4003	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4004	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4005	NCF21CZ-105X	CAPACITOR	1μF,16V
C4006	NCF21CZ-105X	CAPACITOR	1μF,16V
C4007	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4008	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4016	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4017	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4018	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4023	NEA71CM-106X	E CAPACITOR	10μF,16V
C4031	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4032	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4033	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4034	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4035	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4036	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4037	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4038	NCF21CZ-474X	CAPACITOR	0.47μF,16V
C4039	NBE20JM-225X	T CAPACITOR	2.2μF,6.3V
C4040	NCB21AK-105X	CAPACITOR	1μF,10V
C4041	NCB21AK-105X	CAPACITOR	1μF,10V
C4042	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4043	NBE40JM-226X	T CAPACITOR	22μF,6.3V
C4044	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4045	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4046	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4047	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4048	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4049	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4050	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4051	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4052	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4053	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4054	NEA70JM-226X	E CAPACITOR	22μF,6.3V
C4055	NDC31HJ-100X	CAPACITOR	10pF,50V
C4056	NDC31HJ-270X	CAPACITOR	27pF,50V
C4057	NDC31HJ-330X	CAPACITOR	33pF,50V
C4058	NEA70JM-107X	E CAPACITOR	100μF,6.3V
C4060	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4061	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4062	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4064	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4065	NBE40JM-226X	T CAPACITOR	22μF,6.3V
C4501	NDC31HJ-470X	CAPACITOR	47pF,50V
C4502	NDC31HJ-331X	CAPACITOR	330pF,50V
C4503	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4505	NCB31HK-681X	CAPACITOR	680pF,50V
C4506	NDC31HJ-221X	CAPACITOR	220pF,50V

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	C4507	NCB31CK-473X	CAPACITOR	0.047μF,16V
	C4508	NCB31CK-473X	CAPACITOR	0.047μF,16V
	C4509	NCB31CK-473X	CAPACITOR	0.047μF,16V
	C4510	NCB31EK-223X	CAPACITOR	0.022μF,25V
	C4512	NCB31CK-473X	CAPACITOR	0.047μF,16V
	C4513	NCB31HK-102X	CAPACITOR	0.001μF,50V
	C4514	NCF21CZ-105X	CAPACITOR	1μF,16V
	C4515	NCB31CK-473X	CAPACITOR	0.047μF,16V
	C4516	NDC31HJ-5R0X	CAPACITOR	5pF,50V
	C4517	NCB31EK-223X	CAPACITOR	0.022μF,25V
	C4518	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C4520	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C4521	NDC31HJ-220X	CAPACITOR	22pF,50V
	C4522	NCB31CK-473X	CAPACITOR	0.047μF,16V
	C4523	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C4524	NDC31HJ-151X	CAPACITOR	150pF,50V
	C4525	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C4526	NDC31HJ-121X	CAPACITOR	120pF,50V
	C4527	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C4528	NCB31CK-273X	CAPACITOR	0.027μF,16V
	C4529	NCB31CK-273X	CAPACITOR	0.027μF,16V
	C4530	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C4532	NCB31CK-273X	CAPACITOR	0.027μF,16V
	C4534	NCB31CK-473X	CAPACITOR	0.047μF,16V
	C4535	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C4536	NEA71EM-475X	E CAPACITOR	4.7μF,25V
	C4537	NCB31EK-153X	CAPACITOR	0.015μF,25V
	C4538	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C4543	NBE20JM-106X	T CAPACITOR	10μF,6.3V
	C4545	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C4546	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C4547	NBE20JM-106X	T CAPACITOR	10μF,6.3V
	C4548	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C4549	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C4552	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C4553	NEA71EM-475X	E CAPACITOR	4.7μF,25V
	C4554	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C4555	NCB21CK-224X	CAPACITOR	0.22μF,16V
	C4556	NCB21CK-473X	CAPACITOR	0.047μF,16V
	C4557	NCB31CK-104X	CAPACITOR	0.1μF,16V
	C4558	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C4559	NCB31EK-103X	CAPACITOR	0.01μF,25V
	C4561	NEA71EM-475X	E CAPACITOR	4.7μF,25V
	C4562	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C4563	NCB31HK-332X	CAPACITOR	0.0033μF,50V
	C4565	NCB31EK-472X	CAPACITOR	0.0047μF,25V
	C4566	NCB31EK-472X	CAPACITOR	0.0047μF,25V
	C4572	NCB31HK-332X	CAPACITOR	0.0033μF,50V
	C4574	NCB31EK-472X	CAPACITOR	0.0047μF,25V
	C4575	NCB31EK-472X	CAPACITOR	0.0047μF,25V
	C4581	NEA71CM-107X	E CAPACITOR	100μF,16V
	C4582	NCB31CK-104X	CAPACITOR	0.1μF,16V
	C4583	NEA71CM-106X	E CAPACITOR	10μF,16V
	C4584	NEA71EM-475X	E CAPACITOR	4.7μF,25V
	C4585	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	L43	NQL013K-1R0X	COIL	1μH
	L3001	NQL144K-101X	COIL	100μH
	L3002	NQL184J-221X	COIL	220μH
	L3003	NQL144K-101X	COIL	100μH
	L3004	NQL184J-680X	COIL	68μH
	L3005	NQL144K-101X	COIL	100μH
	L3006	NQL184J-560X	COIL	56μH

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	L3007	NQL184J-100X	COIL	10μH
	L3010	NQL144K-101X	COIL	100μH
	L3231	NQL184J-271X	COIL	270μH
	L3232	NQL184J-390X	COIL	39μH
	L3233	NQL184J-221X	COIL	220μH
	L4001	NQL034K-220X	COIL	22μH
	L4005	NQL034K-220X	COIL	22μH
	L4006	NQL034K-470X	COIL	47μH
	L4501	NQL184J-181X	COIL	180μH
	L4502	NQL184J-270X	COIL	27μH
	L4503	NQL184J-151X	COIL	150μH
	L4504	NQL144K-101X	COIL	100μH
	L4505	NQL144K-101X	COIL	100μH
	L4506	NQL144K-101X	COIL	100μH
	L4507	NQL144K-101X	COIL	100μH
	L4508	NQL144K-101X	COIL	100μH
	L4509	NQL184J-221X	COIL	220μH
	L4510	NQL164K-220X	COIL	22μH
	X3001	PEVB0616	CRYSTAL RESONATOR	
	X4501	NAX0090-001X	C OSCILLATOR	
	SW41	NSW0038-001X	SLIDE SWITCH,D	
	J41	PEMC1203	MINI JACK	
	J42	PEMC1188	JACK BOARD	
	CN201	QGF0502F1-22X	FPC CONNE	
	CN202	PEWR0835	LEAD BUS CONN	
	CN203	QGF0502F1-22X	FPC CONNE	
	CN206	PEMC1216-011-R	CONNECTOR	
	CN207	QGB0801K1-30X	CONNECTOR	
△	CP41	ICP-S0.5-X	CIRCUIT PROTECTOR	

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CCD BOARD ASSEMBLY <03>

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PW3	YB10175J3-04	CCD BOARD ASSY,A	
		YB10175L3-04	CCD BOARD ASSY,C	
		YB10175N3-04	CCD BOARD ASSY,D	
		YB10175O3-04	CCD BOARD ASSY,B	
	IC5201	UPD16510GR	IC	
	IC5202	JCY0035	IC	
		or JCY0035-NS	IC	
	IC5203	AN2018S	IC	
	Q5203	2SC3931/CD/-X	TRANSISTOR	
	Q5204	2SC4617/QR/-X	TRANSISTOR	
		or 2SC4738/YG/-X	TRANSISTOR	
	Q5205	2SC4617/QR/-X	TRANSISTOR	
		or 2SC4738/YG/-X	TRANSISTOR	
	D5202	MA8091/L/-X	ZENER DIODE	
	R5201	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R5204	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R5205	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R5206	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R5207	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R5208	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R5209	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R5210	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R5212	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
	R5213	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R5214	NRSA63J-100X	MG RESISTOR	10Ω,1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R5215	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
	R5216	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R5217	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
	R5218	NRSA63J-470X	MG RESISTOR	47Ω,1/16W
	R5219	NRSA63J-470X	MG RESISTOR	47Ω,1/16W
	R5220	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
	R5221	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
	R5222	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R5223	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
	R5226	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R5228	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
	R5229	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R5232	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
	R5233	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
	R5234	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
	R5235	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
	R5238	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
	R5239	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
	R5240	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	C5201	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5202	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5205	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5206	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5209	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5210	NEA70JM-226X	E CAPACITOR	22μF,6.3V
	C5211	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5212	NEA71EM-475X	E CAPACITOR	4.7μF,25V
	C5213	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5214	NEA71EM-475X	E CAPACITOR	4.7μF,25V
	C5215	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5216	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5217	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5218	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5219	NCB31EK-223X	CAPACITOR	0.022μF,25V
	C5220	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5221	NEA70JM-226X	E CAPACITOR	22μF,6.3V
	C5223	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5224	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5225	NDC31HJ-470X	CAPACITOR	47pF,50V
	C5226	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5227	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5228	NCF31CZ-104X	CAPACITOR	0.1μF,16V
	C5229	NDC31HJ-470X	CAPACITOR	47pF,50V
	C5230	NDC31HJ-101X	CAPACITOR	100pF,50V
	C5231	NEA70JM-107X	E CAPACITOR	100μF,6.3V
	C5234	NCB31HK-102X	CAPACITOR	0.001μF,50V
	C5235	NBE20JM-106X	T CAPACITOR	10μF,6.3V
	C5236	NCB31EK-103X	CAPACITOR	0.01μF,25V
	L5201	NQL034K-220X	COIL	22μH
	L5202	NQL034K-220X	COIL	22μH
	L5203	NQL034K-220X	COIL	22μH
	L5204	NQL034K-220X	COIL	22μH
	L5205	NRS181J-0R0X	MG RESISTOR	0Ω,1/8W
	L5206	NQR0129-001X	FERRITE BEAD	
	L5207	NQR0129-001X	FERRITE BEAD	
	L5208	NQR0129-001X	FERRITE BEAD	
	X5201	NAX0016-001X	CXO	
	CN301	NNZ0008-001X	CCD SOCKET	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

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SENSOR BOARD ASSEMBLY <05>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PW	YB10186B	SENSOR BOARD ASSY	
⚠	IC1601	AN3861SA	IC	
	IC1602	XRA10324AF	IC	
		or BA10324AF	IC	
	IC1651	BA6862FS	IC	
	IC1701	BA6417F	IC	
	IC3501	M52385FP	IC	
	Q1	CNB20010	IC(PHOTO SENSOR	
	Q2	CNB20010	IC(PHOTO SENSOR	
	Q3	PN207-/NCLF/VI	PHOTO TRANSISTO	
	Q4	PN207-/NCLF/VI	PHOTO TRANSISTO	
	Q3501	2SD2114K/UV/-X	TRANSISTOR	
	Q3502	2SD2114K/UV/-X	TRANSISTOR	
	Q3503	2SD2114K/UV/-X	TRANSISTOR	
	Q3504	2SD2114K/UV/-X	TRANSISTOR	
	Q3506	DTC144EE	TRANSISTOR	
		or RN1104	TRANSISTOR	
		or UN9213	TRANSISTOR	
	Q3507	DTC144EE	TRANSISTOR	
		or RN1104	TRANSISTOR	
		or UN9213	TRANSISTOR	
	Q3901	2SA1610	TRANSISTOR	
	QA1651	MDC02	TR ARRAY	
	D1	LN57-/LF/VI	LE DIODE	
	R1601	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
	R1602	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
	R1603	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R1604	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R1605	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R1606	NRV142F-R33X	CMF RESISTOR	0.33Ω,1/4W
	R1607	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R1608	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R1609	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
	R1610	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R1651	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R1652	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
	R1653	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
	R1654	NRSA63J-113X	MG RESISTOR	11kΩ,1/16W
	R1655	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R1656	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
	R1657	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R1658	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R1659	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R1660	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R1661	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
	R1662	NRS12BK-R68X	MG RESISTOR	0.68Ω,1/2W
	R1701	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R1702	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
	R3501	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
	R3503	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
	R3504	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
	R3506	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
	R3508	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
	R3509	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
	R3514	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R3515	NRSA63J-243X	MG RESISTOR	24kΩ,1/16W
	R3903	NRSA63J-752X	MG RESISTOR	7.5kΩ,1/16W
	R3904	NRSA63J-821X	MG RESISTOR	820Ω,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R3905	NRSA63J-8R2X	MG RESISTOR	8.2Ω,1/16W
C1601	NCB31EK-472X	CAPACITOR	0.0047μF,25V
C1602	NCB31EK-472X	CAPACITOR	0.0047μF,25V
C1603	NCB31EK-472X	CAPACITOR	0.0047μF,25V
C1604	NCF21CZ-105X	CAPACITOR	1μF,16V
C1605	NCF21CZ-105X	CAPACITOR	1μF,16V
C1606	NCF21CZ-105X	CAPACITOR	1μF,16V
C1607	NCB31EK-223X	CAPACITOR	0.022μF,25V
C1608	NCB31EK-223X	CAPACITOR	0.022μF,25V
C1609	NCB31EK-223X	CAPACITOR	0.022μF,25V
C1610	NDC31HJ-331X	CAPACITOR	330pF,50V
C1611	NCB31CK-473X	CAPACITOR	0.047μF,16V
C1612	NCB31EK-103X	CAPACITOR	0.01μF,25V
C1613	NCF21CZ-105X	CAPACITOR	1μF,16V
C1615	NBE40JM-226X	T CAPACITOR	22μF,6.3V
C1616	NCB31CK-333X	CAPACITOR	0.033μF,16V
C1617	NBE21EM-474X	T CAPACITOR	0.47μF,25V
C1618	NDC31HJ-331X	CAPACITOR	330pF,50V
C1619	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C1620	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C1621	NDC31HJ-221X	CAPACITOR	220pF,50V
C1623	NCB31EK-103X	CAPACITOR	0.01μF,25V
C1624	NCB31HK-102X	CAPACITOR	0.001μF,50V
C1625	NCB31EK-103X	CAPACITOR	0.01μF,25V
C1651	NCF21EZ-224X	CAPACITOR	0.22μF,25V
C1652	NCF21EZ-224X	CAPACITOR	0.22μF,25V
C1653	NCF21EZ-224X	CAPACITOR	0.22μF,25V
C1654	NCB31EK-223X	CAPACITOR	0.022μF,25V
C1655	NCB31EK-223X	CAPACITOR	0.022μF,25V
C1656	NCB31EK-223X	CAPACITOR	0.022μF,25V
C1657	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C1658	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1659	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1660	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C1662	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C1663	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
C1664	NCB31EK-223X	CAPACITOR	0.022μF,25V
C1665	NCB31EK-223X	CAPACITOR	0.022μF,25V
C1702	NCF21CZ-105X	CAPACITOR	1μF,16V
C3501	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3502	NCF21CZ-105X	CAPACITOR	1μF,16V
C3503	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3504	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3505	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3506	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3507	NCF21CZ-105X	CAPACITOR	1μF,16V
C3508	NCB31EK-153X	CAPACITOR	0.015μF,25V
C3509	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3510	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3511	NDC31HJ-270X	CAPACITOR	27pF,50V
C3512	NDC31HJ-120X	CAPACITOR	12pF,50V
C3513	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3514	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3515	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3516	NDC31HJ-270X	CAPACITOR	27pF,50V
C3517	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3518	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3519	NDC31HJ-270X	CAPACITOR	27pF,50V
C3520	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3521	NDC31HJ-120X	CAPACITOR	12pF,50V
C3522	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3523	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3524	NDC31HJ-270X	CAPACITOR	27pF,50V
C3901	NCF21CZ-105X	CAPACITOR	1μF,16V
L3501	NQL144K-101X	COIL	100μH
L3901	NQL144K-101X	COIL	100μH
SW1	NSW0037-001X	PUSH SWITCH	
SW2	NSW0036-001X	PUSH SWITCH	
HD1	LY40042-001A	HOLDER B/B	
CN1	PEMC1216-010-R	CONNECTOR	
CN2	QGF0502F1-06X	CONNECTOR	
CN3	PEMC1216-018-R	CONNECTOR	
CN4	YU41356-2-P	CONNECTOR	
CN5	QGF0502F2-11X	CONNECTOR	
CN6	PEMC1202-050-R	CONNECTOR	
SD1	LY40033-001A	SHIELD CASE	
SD2	LY40035-001A	SHIELD SHEET	

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E.VF BOARD ASSEMBLY(GR-AX270EG/AX275EG/AX470EG TYPE T) <10>

PW	YB20748E-03	EVF BOARD ASSY	
IC7001	BA7149F-XE	IC	
Q7001	2SD968A(RS)	PH TRANSISTOR	
Q7002	2SA1748(QR)	PH TRANSISTOR	
Q7003	2SA1748(QR)	PH TRANSISTOR	
D7001	MA142WA	DIODE	
R7002	QRSA08J-3R9YN	RESISTOR	3.9Ω,1/10W
R7003	NRVA62D-183N	RESISTOR	18kΩ,1/16W
R7005	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R7006	QRSA08J-113YN	RESISTOR	11kΩ,1/10W
R7007	QRSA08J-330YN	RESISTOR	33Ω,1/10W
R7008	QRSA08J-394YN	RESISTOR	390kΩ,1/10W
R7009	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R7010	NRVA62D-104N	RESISTOR	100kΩ,1/16W
R7011	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R7012	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R7013	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R7014	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R7015	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R7016	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R7017	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R7018	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R7019	QRSA08J-120YN	RESISTOR	12Ω,1/10W
R7020	QRS188J-685YN	RESISTOR	6.8MΩ,1/8W
R7021	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R7022	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R7023	QRSA08J-564YN	RESISTOR	560kΩ,1/10W
R7024	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R7025	QRSA08J-275YN	RESISTOR	2.7MΩ,1/10W
R7026	QRSA08J-275YN	RESISTOR	2.7MΩ,1/10W
R7029	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R7030	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
VR7001	NVP0001-221X	V RESISTOR,V SIZE	
VR7002	NVP0001-225X	V RESISTOR,R BRIGHT	
VR7003	PERE0595-565	V RESISTOR,FOCUS	
C7001	QFV21HJ-104AZ	F CAPACITOR	0.1μF,50V
C7002	PECA1131-A107	E CAPACITOR	100μF,10V
C7003	PECA1131-A107	E CAPACITOR	100μF,10V
C7004	PECA1132-A107	E CAPACITOR	100μF,10V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C7005	NCF21CZ-105X	CAPACITOR	1μF,16V
	C7006	QCYA1EK-153	CAPACITOR	0.015μF,25V
	C7007	NCB11CK-105X	CAPACITOR	1μF,16V
	C7008	NCF21CZ-105X	CAPACITOR	1μF,16V
	C7009	PECA1131-A107	E CAPACITOR	100μF,10V
	C7010	PECA1135-Y	CAPACITOR	5600pF,100V
	C7011	QCTA1CH-180	CAPACITOR	18pF,16V
	C7012	QEKC1HM-105	E CAPACITOR	1μF,50V
	C7013	QCFA1HZ-104	CAPACITOR	0.1μF,50V
	C7014	QCFA1HZ-104	CAPACITOR	0.1μF,50V
	C7015	QCZ0136-151Z	CAPACITOR	150pF,1kV
	C7016	PECA1133	CAPACITOR	100pF,500V
	L7001	PELN1175	COIL	
	L7002	PU49993-101	COIL	100μH
	L7003	PELN1101-680JY	COIL	68μH
⚠	T7001	PELN1174	FB TRANS	
	CN7001	PEMC0856-4	CONNECTOR	
	CN7002	PEMC1004-006	CONNECTOR	
	CN7003	PEMC1172	CONNECTOR	

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OPERATION(DECK)BOARD ASSEMBLY <20>

PW	LY10001-001A	OPERATION(DECK)BOARD ASSY

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OPERATION(CAMERA)BOARD ASSEMBLY <21>

PW	LY10002-001A	OPERATION(CAMERA)BOARD ASSY,A,C
	LY10002-002A	OPERATION(CAMERA)BOARD ASSY,D
	LY10018-001A	OPERATION(CAMERA)BOARD ASSY,B

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UPPER DRUM BOARD <40>

PW	YDM3073-6	BOARD (UPPER DRUM)

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E.VF BOARD ASSEMBLY(GR-AX270EG/AX275EG/AX470EG TYPE M) <50>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PW	YQ32236-600	E.VF BOARD ASSY	
	IC1	BA7149F	IC	
	Q1	2SA1037K	TRANSISTOR,TR1	
		or 2SA1179	TRANSISTOR,TR1	
		or 2SA1235	TRANSISTOR,TR1	
	Q2	2SC4132	TRANSISTOR,TR2	
	Q3	2SC4618	TRANSISTOR,TR3	
		or 2SC4655	TRANSISTOR,TR3	
	D1	RLS245	DIODE	
	R1	YQ31803-501	RESISTOR	9.1kΩ,1/10W
	R2	QRSA08G-333YN	RESISTOR	33kΩ,1/10W
	R3	QRSA08J-3R9YN	RESISTOR	3.9Ω,1/10W
	R4	QRSA08J-390YN	RESISTOR	39Ω,1/10W
	R5	YU30595-111	RESISTOR	390Ω,1/10W
	R6	YU30595-113	RESISTOR	91kΩ,1/10W
	R7	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R8	YQ31803-502	RESISTOR	2.2kΩ,1/10W
	R9	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	VR1	YQ31803-504	V RESISTOR,V SIZE	470kΩ
	VR2	YQ31803-505	V RESISTOR,H HOLD	47kΩ
	VR4	YQ31803-506	V RESISTOR,BRIGHT	1MΩ
	R10	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R11	QRSA08J-330YN	RESISTOR	33Ω,1/10W
	R12	QRSA08J-113YN	RESISTOR	11kΩ,1/10W
	R13	YQ31803-503	RESISTOR	3.9kΩ,1/10W
	R14	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
	R15	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
	R16	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
	R17	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R18	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R19	QRSA08F-103YN	RESISTOR	10kΩ,1/10W
	R20	QRSA08F-152YN	RESISTOR	1.5kΩ,1/10W
	R21	QRSA08J-275YN	RESISTOR	2.7MΩ,1/10W
	R22	QRSA08J-275YN	RESISTOR	2.7MΩ,1/10W
	R23	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R24	QRSA08J-154YN	RESISTOR	150kΩ,1/10W
	R25	QRSA08J-2R7YN	RESISTOR	2.7Ω,1/10W
	R26	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R27	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	C1	YQ31803-507	CAPACITOR	0.22μF,16V
	C2	YQ31304-503	CAPACITOR	1μF,16V
	C3	YQ31304-504	CAPACITOR	1500pF,50V
	C4	YQ31304-503	CAPACITOR	1μF,16V
	C5	YQ31304-506	E CAPACITOR	100μF,10V
	C6	YQ31304-506	E CAPACITOR	100μF,10V
	C7	YQ31304-506	E CAPACITOR	100μF,10V
	C8	YQ31304-503	CAPACITOR	1μF,16V
	C9	YQ31392-501	CAPACITOR	100pF,16V
	C10	YU30531-163	CAPACITOR	0.047μF
	C11	QER61HM-100	E CAPACITOR	10pF,50V
	C12	YQ31803-508	F CAPACITOR	6200pF,100V
	C13	YQ31304-506	E CAPACITOR	100μF,10V
	C14	YQ31304-507	CAPACITOR	1500pF,630V
	L1	YQ30723-115	COIL	100μH
	TH1	YU30236-110	THERMISTOR	
	WR1	YQ32236-580	FPC	
⚠	FBT1	YQ31803-550	FLY BACK TRANS	
	HLC1	YQ31803-560	H.COIL	
	CN1	YQ31803-570	CONNECTOR	
	CN2	YQ31803-571	CONNECTOR	
	CN3	YQ31803-572	CONNECTOR	

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VF BOARD ASSEMBLY(GR-AX370EG)<51>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW1	YB20777B1-01	VF BOARD ASSY	
IC101	FA7615CE	IC	
IC102	UPC358GR	IC	
IC103	TC7W04FU	IC(DIGITAL)	
IC104	CXA1854AR	IC	
Q101	DTA114EE	TRANSISTOR	
Q103	2SC4655/BC/-X	TRANSISTOR	
Q104	UMZ1N	TRANSISTOR	
Q105	UMX2N	TRANSISTOR	
Q106	XP6534	TRANSISTOR	
D101	MA111	DIODE	
D102	MA365	VARI CAP DIODE	
R101	NRVA63D-151X	CMF RESISTOR	150Ω,1/16W
R102	NRVA63D-273X	CMF RESISTOR	27kΩ,1/16W
R103	NRSA63J-274X	MG RESISTOR	270kΩ,1/16W
R104	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R105	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R106	NRVA63D-123X	CMF RESISTOR	12kΩ,1/16W
R107	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R108	NRVA63D-333X	CMF RESISTOR	33kΩ,1/16W
R109	NRSA63J-824X	MG RESISTOR	820kΩ,1/16W
R110	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R111	NRVA63D-472X	CMF RESISTOR	4.7kΩ,1/16W
R113	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R114	NRVA63D-332X	CMF RESISTOR	3.3kΩ,1/16W
R115	NRVA63D-273X	CMF RESISTOR	27kΩ,1/16W
R116	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R117	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R118	NRVA63D-472X	CMF RESISTOR	4.7kΩ,1/16W
R119	NRVA63D-273X	CMF RESISTOR	27kΩ,1/16W
R120	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R121	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R122	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R123	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R124	NRVA63D-333X	CMF RESISTOR	33kΩ,1/16W
R125	NRVA63D-562X	CMF RESISTOR	5.6kΩ,1/16W
R126	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R129	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R130	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
R131	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R132	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R133	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R134	NRSA63J-563X	MG RESISTOR	56kΩ,1/16W
R135	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R136	NRSA63J-563X	MG RESISTOR	56kΩ,1/16W
R137	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R139	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R142	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R144	NRVA63D-472X	CMF RESISTOR	4.7kΩ,1/16W
R145	NRVA63D-472X	CMF RESISTOR	4.7kΩ,1/16W
R146	NRSA63J-392X	MG RESISTOR	3.9kΩ,1/16W
R147	NRSA63J-274X	MG RESISTOR	270kΩ,1/16W
R149	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R150	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R151	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R152	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R154	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R155	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R156	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R157	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R158	NRVA63D-333X	CMF RESISTOR	33kΩ,1/16W
R159	NRVA63D-563X	CMF RESISTOR	56kΩ,1/16W
R160	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R161	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R162	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R163	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R170	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R172	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R173	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R175	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R176	NRSA63J-563X	MG RESISTOR	56kΩ,1/16W
R178	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R181	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R183	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R184	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R185	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R186	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R188	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R190	NRVA63D-153X	CMF RESISTOR	15kΩ,1/16W
R191	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R192	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R193	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R194	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R195	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R196	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R197	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R198	NRSA63J-225X	MG RESISTOR	2.2MΩ,1/16W
R199	NRSA63J-225X	MG RESISTOR	2.2MΩ,1/16W
VR153	NVP1202-473N	V RESISTOR,PLL	
VR171	NVP1202-473N	V RESISTOR,R BRIGHT	
VR174	NVP1202-473N	V RESISTOR,B BRIGHT	
VR177	NVP1202-473N	V RESISTOR,RGB GAIN	
VR182	NVP1202-473N	V RESISTOR,BLACK LEVEL	
VR187	NVP1202-473N	V RESISTOR,WHITE LEVEL	
C101	NCB11CK-105X	CAPACITOR	1μF,16V
C102	NDC21HJ-222X	CAPACITOR	0.0022μF,50V
C103	NBE50GM-686X	T CAPACITOR	68μF,4.0V
C104	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C105	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C106	NCF21CZ-105X	CAPACITOR	1μF,16V
C107	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C108	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C109	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C110	NCF21CZ-105X	CAPACITOR	1μF,16V
C111	NDC31HJ-330X	CAPACITOR	33pF,50V
C112	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C113	NCF21CZ-105X	CAPACITOR	1μF,16V
C114	NCB31EK-103X	CAPACITOR	0.01μF,25V
C115	NCB31EK-103X	CAPACITOR	0.01μF,25V
C117	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C118	NCF21CZ-105X	CAPACITOR	1μF,16V
C119	NCB31EK-103X	CAPACITOR	0.01μF,25V
C120	NBE21CM-105X	T CAPACITOR	1μF,16V
C121	NCB31EK-103X	CAPACITOR	0.01μF,25V
C122	NCF11CZ-225X	CAPACITOR	2.2μF,16V
C123	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C124	NCB31EK-103X	CAPACITOR	0.01μF,25V
C125	NDC31HJ-221X	CAPACITOR	220pF,50V
C126	NDC31HJ-330X	CAPACITOR	33pF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C127	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C128	NBE20JM-225X	T CAPACITOR	2.2µF,6.3V
C129	NBE21CM-225X	T CAPACITOR	2.2µF,16V
C130	NBE21CM-225X	T CAPACITOR	2.2µF,16V
C131	NBE21CM-225X	T CAPACITOR	2.2µF,16V
C132	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C133	NBE41CM-106X	T CAPACITOR	10µF,16V
C134	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C135	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C136	NCB31EK-103X	CAPACITOR	0.01µF,25V
C137	NCF21CZ-105X	CAPACITOR	1µF,16V
C138	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C139	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C140	NCB31EK-103X	CAPACITOR	0.01µF,25V
C141	NCB31EK-103X	CAPACITOR	0.01µF,25V
C143	NCB31EK-103X	CAPACITOR	0.01µF,25V
C144	NCB31EK-103X	CAPACITOR	0.01µF,25V
C145	NCB31EK-103X	CAPACITOR	0.01µF,25V
C146	NCB31EK-103X	CAPACITOR	0.01µF,25V
C148	NCB31EK-103X	CAPACITOR	0.01µF,25V
C149	NCB31EK-103X	CAPACITOR	0.01µF,25V
C150	NCB31EK-103X	CAPACITOR	0.01µF,25V
C151	NCB31EK-103X	CAPACITOR	0.01µF,25V
C152	NCB31EK-103X	CAPACITOR	0.01µF,25V
C153	NBE21DM-155X	T CAPACITOR	1.5µF,20V
C154	NCB31EK-103X	CAPACITOR	0.01µF,25V
C155	NCB11CK-105X	CAPACITOR	1µF,16V
C156	NCB31EK-103X	CAPACITOR	0.01µF,25V
C157	NDC31HJ-560X	CAPACITOR	56pF,50V
C158	NCB31HK-102X	CAPACITOR	0.001µF,50V
C159	NCB31HK-102X	CAPACITOR	0.001µF,50V
C160	NDC31HJ-560X	CAPACITOR	56pF,50V
L101	NQL114K-220X	COIL	22µH
L102	NQL114K-220X	COIL	22µH
L103	NQL114K-220X	COIL	22µH
L104	NQL054K-100X	COIL	10µH
CN101	QGF0503C1-12V	CONNECTOR	
CN102	PEMC0967-010-P	CONNECTOR	
CN103	QGF0504C1-16X	CONNECTOR	
CN104	PEMC0907-010-P	CONNECTOR	

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BL BOARD ASSEMBLY(GR-AX370EG)<52>

PW2	YB20777B2-01	BL BOARD ASSY	
Q301	2SK1254S	MOS FET	
R301	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
C301	NBE71CM-336X	T CAPACITOR	33µF,16V
C302	NCF31CZ-104X	CAPACITOR	0.1µF,16V
L301	NQL114K-220X	COIL	22µH
T301	NQS0009-001X	SW TRANSF	
BL301	NLL0001-001	LAMP	
CN301	PEMC0907-010-P	CONNECTOR	

SECTION 6
TECHNICAL INFORMATION

6.1 EMERGENCY DISPLAY

Whenever some abnormal signal is supplied to mechacon CPU, an error number (E 04, for example) displayed in the electronic view finder.

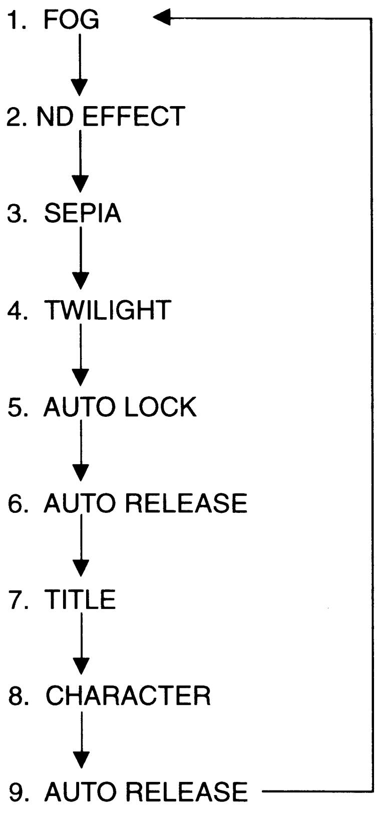
E. VF DISPLAY	Symptom	Mode when observed	Resulting mode
E07	Short circuit of capstan MDA	Power ON	Power OFF
E06	CAPSTAN FG input absent	EDIT	STOP
E04	DRUM FF input absent	DRUM rotation	STOP
E03	SUPPLY REEL FG input absent	REC, PLAY, SEARCH, FF	STOP
E02	Mode control motor rotates for more than 10 sec without shift to next mode.	UNLOADING	Mode continues
E01	Mode control motor rotates for more than 10 sec without shift to next mode.	UNLOADING	Mode continues
E00	Overtime the programming transaction	REC, PLAY	EJECT

Emergency mode : Indication for 5 minutes, then power OFF
Port states : Same as Stop mode
Effective key : POWER
Shifted mode : Power OFF

6.2 DEMONSTRATION MODE

This model is equipped with the function to display P. AE/EFFECT operations partly in the monitor.

1) How to set DEMONSTRATION mode
   Without any cassette tape being loaded, set the program AE select dial to AUTO MODE RELEASE first, keep the STOP and MENU buttons down then set the POWER switch to the REC position.


1. FOG
2. ND EFFECT
3. SEPIA
4. TWILIGHT
5. AUTO LOCK
6. AUTO RELEASE
7. TITLE
8. CHARACTER
9. AUTO RELEASE

2) How to cancel DEMONSTRATION mode
   Set the POWER switch to the POWER OFF position and the DEMONSTRATION mode is cancelled.